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CANCER

Edited by D. W. Penner, M.D.

Carcinoma of the Colon A Clinical Discussion

D. L. C. Bingham, F.R.C.S.

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The yearly toll from malignant disease has steadily increased during the present century. In 1900 cancer as a cause of death was seventh in importance; today, due more to a decline in the death rate of other diseases than to an actual increase in the cancer death rate, it is second only to heart disease and death alone is the least part of the price which cancer exacts from its victims, for the suffering, sorrow, and destitution it causes are immeasurable. The real tragedy of it all is that cancer, in the vast majority of cases, is now a curable disease if only it could be diagnosed and treated in its early stages. Its timely detection and treatment is therefore one of the most important obligations of our profession to humanity.

Incidence—The gastro-intestinal tract is the most frequent site of cancer in humans. In 1940, in the United States, 46 per cent of all deaths attributable to cancer originated in the gastro-intestinal tract (Special Report U.S. Bureau of the Census)¹, the stomach being the organ most frequently involved and responsible for 16.5 per cent of all cancer deaths. Malignant neoplasms of the colon caused about 11 per cent, and those of the rectum and anus nearly 6 per cent of all deaths from cancer. The large bowel therefore is at least as frequent a site of fatal malignant tumors as the stomach. When it is remembered that in the United States approximately 27,000 deaths, and in Canada probably about 2,100 deaths, are caused every year by malignant disease of the large intestine, the dimensions of the problem will be appreciated. The subject is emphasized even more when one recalls that some 50,000 persons in the United States and in Canada probably about 4,000 persons, are estimated to have malignant disease of the colon and rectum which has not yet been diagnosed².

Site of Malignant Tumors of the Large Bowel—

The reported frequency of carcinoma in different segments of the colon varies considerably. Hurst, who combined the figures given by many British, American and Continental surgeons, submits the following table:

Table I
Percentage Incidence of Carcinoma in Different Parts of the Colon

	Large Intestine, Excluding Rectum	Rectum Excluding Rest of Large Intestine	Whole of Colon Including Rectum
Caecum	15	—	—
Ascending Colon	10	—	—
Hepatic Flexure	5	—	—
Transverse Colon	5	—	25
Splenic Flexure	10	—	—
Descending and Iliac Colon	5	—	—
Pelvic Colon	50	—	25
Pelvi-Rectal Flexure	—	65	—
Ampulla of Rectum	—	30	50
Anal Canal	—	5	—
Total	100	100	100

It is immediately evident from a study of Table I that the majority of malignant neoplasms of the large bowel arise in the rectum and rectosigmoid, that is in the last ten inches of the colon, a portion of the large intestine almost wholly accessible to the palpating finger or sigmoidoscope.

Age, Race and Sex Incidence—Carcinoma of the colon occurs at any age in all races, and in both sexes, males being more frequently affected than females in the proportion of approximately 2 to 1. In Pennington's⁴ series of 7,313 cases the age incidence was as depicted in Table II.

Table II
Age Incidence of Malignant Disease of the Large Bowel

Age	Number of Cases	Percentage
Under 20	40	3.8
21 - 30	235	—
31 - 40	690	9.4
41 - 50	1,462	20.0
51 - 60	2,120	29.0
61 - 70	1,836	25.1
Above 70	930	12.7

Although the peak incidence is between 55 and 65, it is not uncommon to find the disease in adolescents and young adults. Rankin and Graham⁵ cite 25 instances of carcinoma of the large intestine in persons less than sixteen years old, two of which were aged five and seven, respectively. Also, nearly 4 per cent of all cases of malignant disease of the large bowel occur in persons not more than thirty years of age. (Pennington⁶, Rankin and Comfort⁴). These youthful cases, as is usual in cancer in young persons, very frequently have a short history, a high incidence of inoperable growths with metastases, and few three and five-year survivals. Very early diagnosis in these cases is therefore essential if cure is to be achieved.

Etiology—It is not within the scope of this communication to discuss in detail either the pathology

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or etiology of cancer of the large intestine, the real origin of which, like carcinoma elsewhere, remains obscure. It may be said, however, that in all probability carcinoma of the rectum does not develop from simple rectal lesions, such as haemorrhoids, anal fissure, fistula-in-ano, and benign rectal strictures. It is also unlikely that constipation predisposes to carcinoma of the colon and rectum, since constipation is distinctly more common in women than in men, whereas carcinoma occurs twice as frequently in men.

Single or multiple adenomata of the large intestine, however, are without doubt closely related to the development of carcinoma in the large bowel⁷ and may indeed precede it in nearly all instances. In this connection Lockhart-Mummery has stated: "The most important factor in connection with simple adenomata, whether of the single or multiple variety, is that they show a marked tendency sooner or later to become malignant, i.e., for the cells to penetrate the basement membrane and invade the surrounding structures. We are of the opinion that all adenomata of the rectum eventually take on malignant change, and in the great majority of cases in which large adenomata have been removed, malignant change has been found to have already occurred in some part or other of the tumor. So marked is this tendency for simple adenomata to become malignant that personally we look upon adenomata as merely a stage in the development of malignant disease, and regard simple adenomata of the rectum as a definitely precancerous condition. It follows from this that on no account should a single adenoma of the rectum be allowed to remain even if it is causing no troublesome symptoms: it should be freely removed." With this statement all competent authorities are in agreement and recommend that single or multiple polypi in any portion of the colon should always be regarded as pre-malignant and be extirpated, no matter how simple they appear on histological examination of a biopsy specimen. Where several adenomata are present they may each be the starting point of a separate cancer, two or more separate cancers being present in approximately 4 per cent of carcinoma of the large intestine⁸.

When fully developed, carcinoma of the large intestine exhibits two important histological cell types—adenocarcinoma and squamous epithelioma. Adenocarcinoma comprise more than 97 per cent of all colon carcinomas and occur in the colon proximal to the anus. Squamous epithelioma is much less common and occurs almost exclusively in the anus and terminal rectum; it comprises from 1 to 2 per cent of all malignant tumors of the large bowel.

The gross appearances presented by adenocarcinoma of the colon vary widely but may be

roughly divided into four varieties: nodular, scirrhous, colloid, and papillary.

(1) **The Nodular** carcinoma projects into the lumen and tends to encircle the bowel. Ulceration is common and occasionally, particularly in the caecum, the tumors may be of large size, encephaloid in appearance, and bleed freely from its ulcerated surface. Fibrous tissue is usually plentiful and the tumor mass is as a rule hard. Partial obstruction is common as a result of inflammation and contraction of the stroma. It is the most common variety encountered and may be met with in both the colon and rectum.

(2) **The Scirrhous** cancer is as a rule small and very hard, fibrous tissue elements being greatly in excess of epithelial. The tumor appears to encircle the bowel as though a knot had been tied around it, giving rise to the well known "napkin-ring" like appearance. It is a potent cause of intestinal obstruction, occurs most frequently in the left colon, and is rare in the rectum, caecum, and ascending colon.

(3) **The Colloid or Mucoïd** variety present a glistening gelatinous appearance, which frequently is not universal throughout the tumor. It is uncommon, only 5 per cent of all adenocarcinomata of the large bowel being of this type. It occurs most commonly in the rectum and rectosigmoid and in the caecum and ascending colon, and is often ulcerated. It does not usually give rise to obstruction.

(4) **The Papillary** carcinoma is usually found in the left colon and resembles a large papilloma or warty excrescence presenting a shallow central ulcer. It does not commonly cause obstruction.

Epitheliomata occur almost exclusively at the anus and may be either ulcerating lesions or nodular masses. The tumours may be very small and closely resemble a fissure or they may be very extensive and involve nearly the entire circumference of the anus. Anal epitheliomata rarely cause mechanical obstruction but are often the cause of very severe pain during defaecation.

Carcinoma of the large intestine thus presents itself in a wide variety of macroscopic forms and any given tumor may display great variation in the histology of its several parts.

Methods of Spread—Cancer spreads and disseminates in three main ways:

(1) By direct invasion of adjacent tissues—spread by continuity.

(2) By the blood stream to distant organs, such as the liver.

(3) By invasion of the lymphatic vessels and lymph nodes with subsequent permeation and embolism to more distant sites.

(1) Cancers of the colon usually grow slowly. At an early stage the tumor is limited to the mucous and submucous layers, grows at right

angles to the long axis of the bowel, and shows little tendency to spread longitudinally. It gradually infiltrates the muscular coats of the bowel and finally erupts through the serosa and invades the surrounding tissues or becomes widely disseminated throughout the peritoneal cavity.

(2) Haematogenous spread takes place at any stage in the disease. It is present in approximately 10 per cent of cases of colonic and 15 per cent of cases of rectal carcinoma^{8, 9}, the organ most frequently invaded being the liver.

(3) Invasion of the lymphatic vessels and nodes is undoubtedly the most important method of spread and it may occur at any time after a malignant lesion has penetrated to the submucosa. Carcinomas of the large intestine metastasize to lymphatic structures frequently, lymph node involvement being demonstrable in from 65-70 per cent of cases of carcinoma of the rectum and sigmoid⁸. In the colon proper the incidence of lymph node metastases is approximately 60 per cent⁸. Epitheliomas commonly metastasize early and involve the inguinal and pelvic lymph nodes. The incidence of lymphatic spread in carcinoma of the large intestine is thus considerable, and Collier and his co-workers have emphasized certain important features which deserve special mention:^{2, 9}

(1) The age of the patient exerts no important influence upon the frequency of metastases.

(2) There is no relationship between the duration of symptoms and the occurrence of metastases.

(3) There is no correlation between the size of the primary tumor and the presence of metastases.

(4) The more malignant the tumor the more likely the presence of lymph and blood borne metastases.

(5) Low lying tumors may metastasize very high.

(6) Retrograde spread and interrupted spread may occur with normal nodes intervening between the primary site and the next involved node.

(7) Metastasis is more frequent when lesions are of very short symptomatic duration.

The Diagnosis of Carcinoma of the Colon and Rectum—Diagnosis is a necessary preliminary to intelligent therapy and in cancer, almost more than in any other disease, early diagnosis is essential for successful treatment. It is therefore especially unfortunate that carcinoma of the large intestine in its early stages is not characterized by any distinctive symptoms and may even be completely silent in about 2.5 per cent of cases¹⁰. Indeed the disturbance of bowel function is frequently at first so trivial and apparently unimportant that it may be completely disregarded by the patient and his doctor for many months.

There are numerous reasons for this apparent neglect. Undoubtedly, the most potent is the prevalence of relatively benign bowel disorders

which manifest themselves by constipation, diarrhoea, and bleeding from the anus. These same three symptoms—constipation, diarrhoea and bleeding—are also common danger signals of a cancer of the bowel. Thus a patient who presents these three symptoms may have a simple lesion, but he may have cancer. The wise physician will therefore most carefully eliminate cancer in all patients with recurrent or persistent constipation, diarrhoea, or bleeding from the anus.

Also, some of the difficulties and confusions which complicate the early recognition of cancer of the large intestine arise because the colon is generally thought of as a simple organ with few functions. In truth, it is a portion of the gastrointestinal tract developed from both the mid gut and the hind gut and it subserves widely differing functions in its several parts.

The proximal colon, which includes the caecum, ascending colon and right half of the transverse colon, is derived from the most caudal portion of the mid gut. Like the ileum, its functions are mainly absorption of water and certain electrolytes and only to a very minor extent does it act as a reservoir for the waste or rejected products of digestion. It is also closely connected by nervous pathways with the stomach, duodenum and bile passages, a circumstance which frequently results in disease of the caecum, masquerading in the disguise of a gastro-duodenal dyspepsia.

The distal colon is derived from the hind gut and extends from the middle of the transverse colon to the ano-rectal junction. Its more proximal portion, from the middle of the transverse colon to the rectosigmoid junction, is concerned mainly with storage of faeces and water absorption. Its distal portion, the rectum, is the organ of evacuation. These two functions are separate and different and when a carcinoma develops in the hind gut the symptom complex which results will depend to a large extent upon whether the storing or evacuating portion of the colon is the site of the lesion. If it is in the descending colon the outstanding symptom will be progressive constipation, eventually passing on to obstruction with back pressure on the more proximal colon; if the growth is in the rectum, disturbances of defaecation will result; and if the tumor occupies the sigmoid colon, derangements of both storage and defaecation may be present.

There are three other circumstances which profoundly influence the clinical features of carcinoma of the colon. These are:

- (1) The caliber of the affected segment of colon.
- (2) The consistence of the bowel contents; and
- (3) The physical structure of the cancer.

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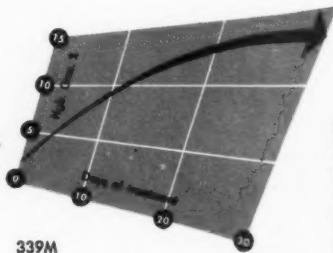
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Also, some of the difficulties and confusions which complicate the early recognition of cancer of the large intestine arise because the colon is generally thought of as a simple organ with few functions. In truth, it is a portion of the gastrointestinal tract developed from both the mid gut and the hind gut and it subserves widely differing functions in its several parts.

The proximal colon, which includes the caecum, ascending colon and right half of the transverse colon, is derived from the most caudal portion of the mid gut. Like the ileum, its functions are mainly absorption of water and certain electrolytes and only to a very minor extent does it act as a reservoir for the waste or rejected products of digestion. It is also closely connected by nervous pathways with the stomach, duodenum and bile passages, a circumstance which frequently results in disease of the caecum, masquerading in the disguise of a gastro-duodenal dyspepsia.

The distal colon is derived from the hind gut and extends from the middle of the transverse colon to the ano-rectal junction. Its more proximal portion, from the middle of the transverse colon to the rectosigmoid junction, is concerned mainly with storage of faeces and water absorption. Its distal portion, the rectum, is the organ of evacuation. These two functions are separate and different and when a carcinoma develops in the hind gut the symptom complex which results will depend to a large extent upon whether the storing or evacuating portion of the colon is the site of the lesion. If it is in the descending colon the outstanding symptom will be progressive constipation, eventually passing on to obstruction with back pressure on the more proximal colon; if the growth is in the rectum, disturbances of defaecation will result; and if the tumor occupies the sigmoid colon, derangements of both storage and defaecation may be present.

There are three other circumstances which profoundly influence the clinical features of carcinoma of the colon. These are:

(1) The caliber of the affected segment of colon.

(2) The consistence of the bowel contents; and

(3) The physical structure of the cancer.

In the right colon, especially in the ascending colon, the bowel is capacious, its contents are a highly septic fluid mush and its cancers are

voluminous, vascular and friable. Obstruction is therefore uncommon, but infection, toxæmia, and chronic anaemia are frequent. In the left colon the bowel is of comparatively small diameter, the faecal content is hard and formed and its tumors tend to be of an encircling type and cause progressive stenosis. Obstructive phenomena, therefore, dominate the clinical picture and toxæmia and anaemia are usually relatively unimportant features.

From this very brief discussion, it is evident that much difficulty may be encountered in making an early clinical diagnosis of cancer of the colon. Fortunately, auxiliary and comparatively exact methods of diagnosis are available, which reduce the margin of error very substantially. They include:

- (1) Digital examination of the rectum.
- (2) Proctoscopy and sigmoidoscopy; and
- (3) X-ray examination of the colon by the opaque enema.

They should all be used when there is any possibility of a cancerous lesion being present.

It now becomes possible to formulate the procedures which are essential for the early diagnosis of cancer. These are enumerated in Table III.

Table III

Diagnosis of Carcinoma of the Colon and Rectum

Procedures necessary for Diagnosis:

- (1) Painsstaking anamnesis
- (2) Complete physical examination
- (3) Digital examination of the rectum
 - a. Right lateral position
 - b. Knee chest position
- (4) Proctoscopy and sigmoidoscopy

If the tumour is visualized the following features should be noted:

 - a. Characteristics of growth, whether ulcerative or papillary; its size, position and fixity.
 - b. Biopsy should be taken from the edge of the tumour.
- (5) X-ray examination:
 - a. Flat plate of the abdomen
 - b. Opaque enema
 - c. Contrast enema

Anamnesis—There is no doubt that since the introduction of comparatively exact laboratory and radiological aids to diagnosis, inquiry into patient's history has become less painstaking. Yet it is some derangement of function and the development of a symptom such as bleeding that impels the patient to seek advice. It is after all the symptom which points the finger to the possible cause, the cloud no bigger than a man's hand which warns of the storm to come. Only by most careful study can a true appreciation be made of the patient's past and present health and the probable cause for his present symptoms be determined.

Malignant disease of the large bowel should be suspected whenever a patient over thirty years of age complains of:

- (1) A recent change in bowel habit such as constipation, diarrhoea, or the passage of unusual quantity of flatus from the bowel.
- (2) Abdominal discomfort, soreness, or pain related to the act of defaecation.

- (3) Bleeding from the rectum.

- (4) Gradually developing abdominal distension and peristaltic unrest.

- (5) Loss of weight and strength or progressive anaemia which cannot otherwise be explained.

- (6) Attacks of partial intestinal obstruction or the sudden onset of obstipation for which no obvious cause, such as a hernia, is present.

- (7) An abdominal mass.

In the presence of any of these symptoms or signs a complete examination should be made at once and the patient's physical status appraised.

The digital examination of the rectum should then be done. Two positions are commonly employed:

- (a) The right lateral position and (b) The knee chest position.

There is no doubt that the right lateral position is greatly to be preferred, because the knee chest position is far from comfortable for the patient; it is undignified and much resented by women; also in the knee chest position many comparatively low growths which are still movable drop out of the pelvis and may, in consequence, not be reached by the palpating finger. The position of choice is therefore the right lateral position. It allows the patient to relax in comfort during the examination and enables the examiner, as Abel¹¹ has pointed out, to reach higher into the pelvis than in any other position. Growths even eight to ten inches from the anus may be quite easily felt. (See Fig.)

The examination must be conducted deliberately and carefully. The patient should be told that the finger will be inserted into the rectum and reassured that there will be little discomfort if he relaxes completely. The buttocks are then separated, the anus carefully inspected and any abnormal features noted. A liberal quantity of lubricant should then be gently massaged into the anus and about its margins so that the finger will slip into the rectum with as little friction as possible. If the external anal sphincter is spastic, because of the presence of a fissure, or inflamed from persistent tenesmus, an anaesthetic ointment such as Nupercainol should be used beforehand.

Once inserted the finger palpates the anal canal and the presence or absence of rough areas, pits, or ulcers is noted. If an ulcer suggestive of carcinoma is felt, its position, dimensions, and fixity are determined. The finger is then inserted into the rectum proper and carefully swept round its walls. A wide variety of lesions may be encountered. A faecal impaction feels hard, is circular or oval in shape and frequently may be indented like putty. Adenomata are usually elusive, soft and attached. Villous tumours are soft and difficult to delimit accurately. Carcinomas feel craggy, nodular, and hard. They often have a raised, indurated edge, and frequently a central crater.

The portion of the rectum which they occupy may be mobile or firmly fixed to surrounding pelvic structures. Extra rectal structures should be carefully sought for. In men, the prostate and seminal vessels are usually readily felt and, in women the cervix is a prominent feature in front of the anterior rectal wall. Posteriorly, enlarged glands and thickening lymphatics may sometimes be felt in the mesorectum. In both sexes the possibility of secondary malignant deposits from a carcinoma elsewhere in the abdomen should be remembered.

Proctoscopy and Sigmoidoscopy — No special preparations or anaesthetic is usually required for this examination, which can frequently be done as an office procedure. Enemata are, in fact, undesirable because very often part of the enema fluid is retained; also, if faecal material is present in the rectum, it can generally be picked out or swabbed out through the proctoscope or sigmoidoscope. If the rectum is loaded with faeces and the examination is consequently impossible to complete satisfactorily the patient should be admitted to hospital and a cleansing enema of two quarts of warm water (110°F) should be given about six hours before the time of the proposed examination.

Proctoscopy and sigmoidoscopy can be performed with the patient in the right lateral position. The best position, however, is the so-called knee shoulder position. In this the patient kneels and rests his left shoulder and left side of his face on the table. His thighs should be vertical with the knees slightly separated and his back should be straight and not arched.

During procto-sigmoidoscopy the following features should be most carefully noted:

(1) Nature of faeces in the bowel and whether there is also blood, pus or mucous present.

(2) Threadworms.

(3) Internal haemorrhoids, fibrous polyps, or hypertrophied anal papillae.

(4) The dimensions of the lumen of the rectum, whether normal, ballooned, or contracted.

(5) The appearances of the mucous membrane, whether pale and smooth, or inflamed and granular with a tendency to blend.

(6) The presence of any structure of the rectum or spasm at the recto-sigmoid junction.

(7) The size and site of epithelial tumors such as adenomata or carcinomata. If such a tumor is discovered and it is thought to be benign it should be removed with a diathermy snare and examined histologically. If, however, the tumour is probably carcinomatous a biopsy should be taken from its edge.

Re-examination—If for any reason the examination has been unsatisfactory, either because the patient was nervous and intolerant of the procedure, or because the rectum was loaded with

faeces, procto-sigmoidoscopy must be repeated, if necessary under anaesthesia, after an interval of two or three days. In the interval the bowel should be carefully cleansed and any painful condition of the anus relieved. Re-examination is especially necessary in cases with symptoms suggesting the presence of carcinoma and there can be few surgeons who have not had the bitter experience of missing an early carcinoma situated just above a valve of Houston, which on examination often much later, was easily seen.

X-ray Examination — Accurate diagnosis of disease of the colon has been immeasurably helped by X-ray examination. It must, however, always be remembered that the method is not infallible. Indeed, even in expert hands, many mistakes are made and the percentage error may approach or even exceed 10 per cent in early malignant lesions. This is especially true of early growths of the rectum, sigmoid, and caecum, portions of the colon which are mobile, capacious, and difficult to fill completely. We have recently observed three cases of carcinoma of the sigmoid in which a diagnosis could not be firmly established at the first examination. Roentgenophy of the colon is thus invaluable but not infallible.

In all cases with suspected cancer of the colon the following X-ray studies should be made:

(1) A flat plate of the abdomen. This examination is especially valuable in patients with acute obstruction, since it frequently enables the surgeon to estimate the approximate site of the obstruction and thus to plan his approach more satisfactorily.

(2) Barium enema examination with variations in the technique of administration such as contrast enemata.

(3) X-ray studies of the chest should be made in all cases to exclude demonstrable secondary carcinomatous deposits in the lungs.

(4) In certain cases an investigation of the urinary tract by excretion urography may be required.

It should never be forgotten that a barium meal must not on any account be given to patients with any degree of colonic obstruction. By so doing a partial obstruction may be converted into a complete one and a profoundly dangerous emergency may be precipitated.

Up to this point cancer of the colon has been discussed in general terms in preparation for a more detailed consideration of its diagnosis in the several portions of the large bowel. Space forbids a full analysis of the problems of Differential Diagnosis which disorders of the colon present, but the more important diseases which may simulate cancer are listed in Table III. Each may resemble cancer very closely and all should therefore be remembered and considered in the appraisal of each individual clinical problem.

Table III

Different Diagnosis of Carcinoma of the Colon

Hyperplastic tuberculosis
 Segmental chronic ulcerative colitis
 Diverticulitis
 Appendix Abscess
 Actinomycosis
 Amoebiasis of the Colon
 Single Benign Tumors
 Polyposis
 Megacolon
 Syphilis
 Haemorrhoids

Clinical Features of Carcinoma of the Right

Colon—Three factors influence the production of symptoms from carcinoma of the right half of the colon:

(1) The contents of the colon are liquid. Obstruction is therefore uncommon.

(2) Tumors in the caecum and ascending colon are usually large, ulcerated, infected, and bleeding. Occult blood in the stool is consequently almost invariably present and frequently blood loss is prolonged and severe. Chronic sepsis likewise adds materially to the secondary anaemia which results from the weeping bleeding growth.

(3) The right half of the colon is a portion of the intestine with important powers of absorption. A voluminous and infected cancer is highly prejudicial to this function. Marked digestive disturbances are therefore frequent.

As a result of the interaction of these three main factors carcinoma of the right half of the colon obtrudes upon the patient's consciousness in three main ways:

- (1) By causing indigestion.
- (2) By causing anaemia.
- (3) By the discovery of a mass in the right side of the abdomen.

The Dyspeptic Group — Approximately 60 per cent of cases with carcinoma of the caecum and ascending colon first consult their doctor because of indigestion characterized by epigastric discomfort, nausea, fullness after meals, lower abdominal distension and localized tenderness in the right side of the abdomen. These symptoms may closely resemble those caused by chronic cholecystitis, gastro-duodenal disease, or recurrent appendicitis, and explain the frequency with which these two diagnoses are made in cases where the real cause of symptoms is a carcinoma of the ascending colon. Indeed in proportion to its frequency almost as many patients with carcinoma of the ascending colon are operated upon for subacute appendicitis and chronic cholecystitis as patients with carcinoma of the rectum are operated upon for haemorrhoids. It should therefore be emphasized that every case of dyspepsia may be due to either gastro-duodenal disease, derangement of the biliary

apparatus or disease of the colon, particularly the caecum and ascending colon, and in cases in which the stomach, duodenum and biliary system cannot be incriminated as the source of symptoms the colon must be carefully examined before laparotomy is undertaken. Disturbances of evacuation are conspicuously rare (6 per cent only in Rossei's series of 100 cases) contrary of the traditional belief that alternating constipation and diarrhoea are characteristic of carcinoma of the right colon.

The Anaemic Group—This group, which forms about 30 per cent of the total, seeks medical help because of progressive weakness, inability to work, loss of weight and increasing pallor. Although occult blood is invariably present in the stool visible blood loss is rare. The tumor itself is usually easily felt but it may not be palpable, especially in corpulent patients. Consequently a diagnosis of primary and secondary anaemia should never be accepted until thorough examination of the whole gastro-intestinal tract, including the whole colon, has been made. There is almost never visible loss of blood. On investigation these cases frequently have a startling degree of anaemia and the haemoglobin concentration may be as low as 40 per cent or even 30 per cent before the patient seeks advice, often at the urgent request of his relatives.

The Mass Group—In this group, which comprises about 10 per cent of the total, a tumor mass which on further investigation proves to be carcinoma, is discovered, either by the patient himself or by the medical advisor in the course of a routine health examination. These cases are peculiarly silent and symptomless until discovery, and do not merely represent earlier stages of the dyspeptic or anaemic groups. Indeed frequently they are found to be inoperable because of hepatic metastases.

Carcinoma of the Hepatic Flexure—Carcinoma of the juxta hepatic colon forms only about 2.5 per cent of all malignant tumors of the bowel. The contents of the colon at this point are still fluid and consequently the symptoms which a carcinoma in this situation give rise to closely resemble those caused by growths in the caecum and ascending colon, except that, due to the angulation of the bowel at this point and its somewhat smaller diameter, obstruction is slightly more frequent. The close relationship of this portion of the bowel to the gall bladder and duodenum also frequently results in invasion of these structures by a colonic growth and consequently much difficulty may be encountered in the differential diagnosis.

Clinical Features of Carcinoma of the Left Colon—The conditions which influence the production of symptoms from a carcinoma of the left half of the colon are:

(1) The contents of this portion of the colon are hard and formed. They are consequently difficult to force through a closing bowel.

(2) Tumors of the left colon are usually small, very hard, encircle the bowel and thus cause slowly progressive stenosis. Only rarely are they succulent, friable, and significantly ulcerated.

Because of these two circumstances progressive intestinal obstruction is the outstanding symptom of carcinoma of the left half of the colon. At first the bowel proximal to the growth hypertrophies and overcomes the obstruction and the only unusual feature which the patient notices is an unaccustomed irregularity of bowel action. At the same time he becomes conscious of an unwonted flatulence associated with vague abdominal rumblings and unrest. He finds it is peculiarly satisfying to pass wind; it somehow seems, temporarily at least, to allay the disquiet in his belly. As time passes it becomes increasingly difficult for him to empty his bowel and several days may pass without a movement, and more and stronger purgatives are used, usually with temporary success, but also with unpleasant lower abdominal cramps-like pains. Frequently each evacuation is followed by a short bout of diarrhoea with some mucous in the stool. And perhaps once or twice a little blood may be passed.

The patient is now intensely colon conscious. He pays many visits to the toilet, where he strains to empty his bowel. As a result his haemorrhoidal venous plexuses become engorged, piles rapidly develop, and he begins to lose a little blood at each act of defaecation. A gradual deterioration in general health now begins to take place and there may be some indigestion due to increasing back pressure upon the caecum. Finally, the bowel proximal to the obstruction becomes incapable of forcing faeces through the narrows of the tumor and an acute and complete intestinal obstruction supervenes.

Yet, even after the advent of this catastrophe, the patient may not at first appear to be acutely ill. His tongue remains moist and his temperature normal and he may even pass a little wind. But as the days pass his abdomen becomes increasingly distended, especially in its right lower quadrant. Noisy rumblings echo through his belly, and curious writhing movements within offend his consciousness. At length he begins to belch and vomit copiously. He refuses all foods but is consumed by an intolerable thirst. His skin becomes withered and dry and his urine scanty, soup-like, and strong smelling. In a few days, unless his obstruction is relieved, an ominous quiet descends upon his abdomen and shortly afterwards the patient enters into his final rest.

Such then is the insidious and inevitable progress of the disease. It gives ample warning of

its presence to both patient and doctor by the unusual costiveness, the rare diarrhoea, the rumblings within, the blood-streaked stool, and the recent piles. Careful inquiry at an early stage into symptoms and meticulous and informed X-ray investigation will disclose the cancer to the clinician and a planned and successful attack upon it will be possible. Procrastination or neglect will inevitably lead to obstruction, a perilous complication from which the patient may not recover.

Clinical Features of Carcinoma of the Rectum and Recto-sigmoid—There are a number of factors which influence the production of symptoms from carcinoma of the rectum:

(1) The faeces which pass through the rectum are semi-solid or solid. Vascular and friable tumors are consequently frequently abraded and bleeding at defaecation is thus an extremely common sign of a rectal tumor.

(2) In addition, if a stenosing carcinoma is present with its many consequences, as in the descending colon, partial or complete obstruction is liable to occur. The carcinomas which occur in the rectum are very commonly friable, vascular cancers with a large central ulcer heavily infected by intestinal organisms. A constant flux of serosanguinous secretions seeps from the growth and accumulates in the rectum to be passed subsequently in a form which the patient describes as a diarrhoea.

(3) The main function of the rectum is defaecation. In health it is usually empty and serves as a muscular conduit along which formed faeces are propelled from the sigmoid and descending colons to the exterior, and when faeces enter the rectum, usually as the result of mass movement of the colon, a reflex is brought about which results in the higher centres becoming aware of the desirability of emptying the bowel or, in simpler terms, there is a "call to stool." This call may or may not be answered. If punctually responded to a rhythm of regular bowel function becomes established and the reflex is loud and insistent. If, on the other hand, the call to stool is frequently disregarded, in time it becomes hushed or merely a "still, small voice" muffled beneath a mountain of faeces (and this is the most potent cause of chronic constipation).

There is thus great variation in the rectum's response to the presence of a foreign body within its lumen. In the case of a person whose rectum is normally empty, a tumor in its wall and lumen will provoke the "call to stool" or emptying reflex and that person will feel that defaecation has been incomplete and unsatisfactory. On the other hand, when the rectum has become habituated to the presence of faeces within it a tumor may reach large proportions before it causes the sensation of incomplete evacuation to its host.

There is another manner in which abnormal defaecation may be caused by a tumor of the rectum. To effect complete emptying of the rectum a powerful co-ordinated peristaltic muscular effort is required. A tumor of the rectum which has invaded its muscular coats inevitably interferes with the smooth progress of the peristaltic wave and irregular and deranged propulsion of the faecal stream results with consequent impairment in defaecation.

(4) Invasion of surrounding organs by the growing tumor takes place as the later stages of the disease are reached. The first structures involved are the superior haemorrhoidal veins, occlusion of which results in back pressure upon their tributaries and the development of internal haemorrhoids, probably the best known and least avoided pitfall of surgery. Other structures which may be invaded include the prostate and bladder in men, the vagina and uterus in women, and in both sexes the large nerve roots of the lumbosacral plexus. Dysuria, recto-vesical fistula, a vaginal discharge, and pain deep in the pelvis or referred to the legs is the harvest of these invasions, which is shortly followed by the long winter of death.

From this brief consideration of the circumstances which influence the symptomatology of carcinoma of the rectum, it is evident that considerable variation in the clinical features of the disease is likely to occur. In some cases, and especially in those cases where the growth is very low in the rectum, symptoms may be severe from the beginning. In others there may be an almost total absence of symptoms until the disease is far advanced and beyond cure. In the usual case, however the history is often as follows:

The patient is usually a man past middle age. The first thing he notices is a change in his bowel habit. Whereas formerly it was his custom to empty his bowels after breakfast and to experience complete satisfaction from this act, he begins to find that he misses a day or is displeased with his efforts. At the same time, or a little later, he finds that occasionally he passes some blood, which may be streaked over the surface of the stool or be seen on the paper tissues. Since the amount of blood is usually small and since it frequently seems to originate in a haemorrhoid, little alarm is often caused by this danger signal. The patient decides that the bleeding is due to his recent constipation, he takes a laxative for a few days, and frequently all his symptoms disappear for a short while. But inevitably they recur and as the cancer grows so do new symptoms arise. Constipation becomes more troublesome and it seems often to alternate with diarrhoea, a slimy, smelly mucous being passed several times a day, especially in the early morning on rising. As time passes bleeding with defaecation becomes almost a daily happening; bowel movements become less and less satisfactory;

there always seems to be "something there" which should be got rid of; and the patient himself, or his family and friends notice that he is out of sorts, perhaps a little thinner, that he tires more easily, and that he is less energetic.

At this stage, and all too often not before it, the patient consults his doctor who may or may not appreciate the full gravity of the situation. If a careful history is taken and general examination made, and especially if a meticulous digital and sigmoidoscopic examination of the rectum is done, the carcinoma can hardly escape detection. But if the investigation is cursory and incomplete and the patient is treated symptomatically or merely cozened with mineral oil and a diet, the cancer will remain concealed and pursue its evil progress.

The last stages of the disease are not long delayed. Pain, that most frightening and distressing of symptoms, grips the patient in its iron hand; invasion of the urinary tract brings frequency and strangury to his misery; and distant metastases add jaundice, pruritus, ascites, and cough to complete his martyrdom.

Such then is the history of the disease.

Its presence is heralded by an unwonted constipation; announced by bleeding at defaecation; proclaimed by a bloody slimy diarrhoea; and diagnosed by the inserted finger and sigmoidoscope. It should almost never escape detection by the physician if only he feels and looks. It is curable in its earlier stages by the surgeon.

The Treatment of Carcinoma of the Large Intestine—It is not the aim of this communication to discuss in detail the surgical methods used in the treatment of carcinoma of the large intestine. Certain broad principles, however, deserve emphasis and some results of the work of well known authorities in this field will be reported in order that an informed estimate of prognosis may be made in any given case.

It is of paramount importance to remember that a patient with a cancer of the colon has had his disease for several months at least and that, no matter how robust or well he seems to be, a period of preparation is necessary before he can safely be brought through the ordeal of a large operation. In general terms there are two main aspects of each patient's case which must be considered:

(a) The patient as a whole must be made "safe for surgery."

(b) The colon itself must be prepared for resection.

A. The Preparation of the Patient for Operation—The following features of each patient require separate consideration:

(1) Correction of chronic malnutrition and low blood protein levels by an appetizing high protein high carbohydrate diet of about 4,000 calories value per day.

(2) **Anaemia**—Patients with carcinoma of the caecum and ascending colon are frequently severely anaemic when their disease is first diagnosed, and the same is frequently found in a lesser degree of cases with carcinoma of the left half of the colon. Repeated small blood transfusions and the exhibition of iron and liver concentrates are vitally important to the preparation of all these patients for operation and no elective procedures for the eradication of a colonic cancer should be undertaken if the haemoglobin concentration is below 80%.

(3) **Restoration to normal of the water and electrolyte equilibria of the body.**

(4) Many cases with carcinoma of the colon develop subclinical vitamin deficiency states, which may most adversely affect healing and the whole post-operative course. A high vitamin intake is therefore essential during the period of preparation, especially of Vitamin C and it is our practice to give 1,000 mg. of ascorbic acid per day in the pre-operative period.

(5) **Associated Disease** — The majority of patients with carcinoma of the colon are no longer young. A close investigation of the respiratory, cardiovascular, and renal systems is thus necessary before surgery is undertaken. If the patient is found on investigation to be a diabetic this disease will require most careful control throughout the whole pre and post-operative periods.

B. The Preparation of the Colon—It is now universally agreed that before a major resection of the colon is undertaken two conditions must be fulfilled:

(1) The colon itself must have been rendered as nearly as possible sterile.

(2) Obstruction must have been completely overcome.

Sterilization of the Colon—Previous to 1940 comparative sterilization of the colon was only accomplished with difficulty and uncertainty. No powerful antibacterial drugs, whose main action was upon intestinal organisms, were available. Mechanical methods, notable among which was Sir Hugh Devine's method of "dysfunctioning" the distal colon, were therefore employed to divert the faecal stream and the Auegan distal colon was thereafter irrigated by the Alpheus like irrigating enema. With the introduction of sulphaguanidine, and more recently of succinyl sulphathiazole, sulphathalidine, and streptomycin, which are even more potent intestinal antibacterial drugs, it became possible to reduce the bacterial count of the large intestine to negligible proportions. As a result the colon can be operated upon with comparative freedom from the risk of peritoneal infection, open meticulous placement of sutures is permissible and the colon itself, freed from the incubus of hostile bacteria, heals kindly and quickly.

Obstruction—From the standpoint of obstruction patients with carcinoma of the colon may be divided into three groups:

(1) Those without obstruction.

(2) Those with chronic obstruction.

(3) Those with acute obstruction.

The patient without obstruction is indeed fortunate. For him his general preparation by dietetic and other measures progresses unhindered and unchecked. He can immediately be given 4,000 calorie high protein high carbohydrate low residue diet rich in vitamins. A gentle laxative, such as senna, with one ounce of mineral oil twice a day, promotes complete evacuation and his colon can at the same time be made relatively aseptic by the administration of two grams of sulphasuxidine four times a day for 7-10 days. Anaemia and hypoproteinaemia should be overcome by blood transfusions in suitable amounts. If there is evidence of pericolic infection such as tenderness, fixity and an elevated temperature and white blood cell count, 50,000 units of penicillin should be given intramuscularly every three hours. Ambulation should be insisted upon and deep breathing exercises should also be carried out every day. After 7-10 days of such treatment both the patient himself and his colon are usually fit and ready for surgery and both he and his surgeon are able to look forward with reasonable assurance to a safe operation and an uncomplicated convalescence.

If, however, the patient is partly or completely obstructed when he is admitted to hospital his preparation is much less simple. The first factor to be overcome is the obstruction itself, and here, unless it is trivial, a suitable proximal colostomy, such as that of Devine or Wangenstein, should be performed. Much has been written recently of the advantages of conservative decompression of the colon and some operators even carry out major resections upon colons significantly occluded but temporarily deflated by Harris, Cantor or Miller Abbott tube drainage. This we believe to be fundamentally unsound because these methods do not restore the proximal gastro-intestinal tract to normal. Digestion, absorption and excretion are therefore abnormal and adequate general dietetic preparation of the patient is impossible. Emergency operative treatment is, however, rarely necessary except in the presence of acute intestinal obstruction, and even this complication does not necessarily require immediate operative relief. Twelve to twenty-four hours conservative decompression of the upper intestinal tract, during which fluid and electrolyte balances are restored to normal by suitable intravenous therapy, make it possible to form an accurate appraisal of the patient's general condition, cardiac reserve, and renal function. Digital and sigmoidoscopic investigation of the rectum, plain X-rays of the abdomen

and, in some case, a barium enema examination will nearly always clearly indicate the situation of the growth. A planned and reasoned solution of the problem of surgical decompression can then be made and the most suitable site for a preliminary colostomy determined. This in general terms can be stated to be the most distal easily accessible mobile portion of the colon in which a preliminary colostomy will not materially interfere with subsequent manoeuvres for the eradication of the growth and the fields of lymphatic spread.

The colostomy having been established two problems remain which require solution:

(1) The general metabolic preparation of the patient. This usually presents no special difficulty but takes longer than in the case of the unobstructed patient. It is conducted on similar lines, including the administration of succinyl sulphathiazole and penicillin.

(2) The preparation of the distal colon. The following procedure is carried out for a week before operation:

(a) The lower colon is irrigated with physiological saline until it is clear.

(b) The distal loop of the colostomy is cleansed in a similar manner. At first difficulty is often encountered and the faecal content of this loop may seem inexhaustible. Hard faecal accumulations may even require to be softened by instillations of mineral oil or hydrogen peroxide. At the conclusion of each irrigating session two grams of a suspension of succinyl sulphathiazole should be instilled into both the proximal colonic loop and rectum.

After a few days of this regime the distal colon frequently becomes patent once again and through and through irrigation finally completes the preparation of the colon for operation.

The Operative Treatment of Carcinoma of the Large Intestine—Any operative procedure for the cure of carcinoma of the colon should:

- (1) Extirpate the tumor.
- (2) Remove all removable fields of lymphatic spread; and
- (3) Restore faecal evacuation to normal or provide an efficient and satisfactory alternative method of elimination.

In the ideal circumstances of an early growth without distant metastases all these criteria can be fulfilled. Unfortunately, however, in many cases complete removal of all distant metastases may be impossible and in these circumstances the most satisfactory palliative operation should be performed. This, in the majority of such cases, is removal of the growth itself and adjacent lymphatic metastases and restoration of colonic continuity by end to end anastomosis of proximal to distal segment of the colon. In some cases, however, only a proximal colostomy may be possible and it

may even not be feasible to remove the tumor itself.

But whatever is contemplated the surgical maxim of fitting the "operation to the patient" and not the "patient to the operation" should never be forgotten and staged procedures are of the greatest possible value in the debilitated patient.

The operations at present advocated for the cure of cancer in the several parts of the colon are enumerated in Table IV.

Table IV

A. For Carcinoma of the Caecum, Ascending Colon and Hepatic Flexure—Resection of the terminal ileum, caecum, ascending colon and right half of the transverse colon with ileotransverse colostomy done either in one or two stages.

B. For Carcinoma of the Transverse Colon—Wide resection of the transverse colon and the mesentery with end to end anastomosis.

C. For Carcinoma of the Descending Colon and Pelvic Colon—Wide resection of the tumor and removable fields of lymphatic spread with either:

- a. Immediate end to end anastomosis with or without proximal caecostomy or colostomy; or
- b. Delayed anastomosis after the manner of Paul Mikulicz.

D. For Carcinoma of the Rectum and Pelvi-Rectal Junction:

a. Abdomino-Perineal resection (Miles) or Perineo-Abdominal Resection (Gabriel) of the Rectum. Permanent abdominal colostomy.

b. Abdominal Resection of the upper Rectum (Hartmann). Permanent abdominal colostomy.

c. Abdominal Resection of the Rectum with low Recto-Colic anastomosis (Devine).

d. Abdominal Dissection with Perineal Resection and suture to a Rectal cuff or the anus (Babcock, Hochenegg, Bacon).

e. Perineal Resection of the Rectum (Lockhart-Mummery). Permanent abdominal colostomy.

It is outside the scope of this communication to discuss the merits and demerits of the various operations enumerated in Table IV, nor indeed does time permit of a detailed analysis of the mortality and morbidity from these procedures. In general terms, however, the following statements represent the present day operability mortality and five-year survival rates of operations for the cure of carcinoma of the colon:

- (1) Operability—85 per cent.
- (2) Mortality:
 - (a) Major resections for cure—5 per cent.
 - (b) Palliative operations only—10-15 per cent.
- (3) Five-year Survival without demonstrable recurrences.
 - Right colon—55-60 per cent
 - Left colon—45-50 per cent
 - Rectum—35-40 per cent

These are average results as reported by numerous authorities and include cases both early and late. The prognosis, as always, varies with the stage to which the cancer has progressed. In early cases the five-year survival rate exceeds 80 per cent (82.2 per cent for perineal excision of the rectum in Group A cases—Gabriel¹³) and even 10 per cent of advanced cases with distant lymphatic metastases may be salvaged (9.7 per cent five-year survival rate after excision of the rectum for cancer in cases with proved distant lymphatic metastases (C₂)—Gabriel¹³).

The fate of untreated patients is in sharpest and most bitter contrast and has been most ably presented by Daland, Welch and Nathanson¹⁴, who reported one hundred untreated cancers of the rectum. Table V, taken from their paper, is most truly informative.

Table V

Carcinoma of the Rectum (Daland, Welch, and Nathanson)
Untreated Cases

Cases	Duration of life in months from onset of symptoms	
	Average	Medium
Untreated cases _____ 100	17.2	14.0
Colostomy only _____ 80	16.9	14.0
Colostomy and Radiotherapy _____ 32	18.8	15.0

Thus the untreated patient may have a year and a half, much of the time in direst misery. Colostomy does not prolong his life and radiotherapy appears to be of little help. There is indeed at present no hope for the patient with a carcinoma of the colon, except in surgery, which removes the growth itself and possible fields of spread. Let us therefore be suspicious of the trivial but persistent symptom, inflexible in our determination to investigate and re-investigate, and forthright in our advice, that only by the way of surgery can cure be found.

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Giant Cell Tumor of Bone

J. C. Wilt, M.D.

Benign giant cell tumor is a disease of cancellous bone in adults which destroys bone and expounds and perforates the overlying cortex. It most commonly involves the epiphysis of lower end of femur and radius and the upper tibia. It may occur in the clavicle, phalanges, talus, ilium, patella, scapula, sacrum, ribs, cuneiform, vertebrae, fibula. Forty per cent of giant cell tumors occur in the third decade of life.

Embryologic studies emphasize the association of intra-cartilagenous ossification to giant cell tumor. This explains the common occurrence in the epiphysis of the long bones and at the third decade since the process of transformation of calcified cartilage to bone is present at this time. This is in contrast to the bone cyst occurring in children on the shaft side of the metaphyseal line where the transformation of calcified cartilage to bone is complete in childhood.

Giant cell tumors occurring along the alveolar border in the form of giant cell epulis and in tendon sheaths and soft parts offer greater difficulties in the establishment of their relationship to the resorption of temporary bone.

The role of trauma in the production of giant cell tumors is controversial. It is very questionable if any definite proof of relationship can be sustainable by unequivocal evidence. Geschickter and Copeland¹ suggest that trauma may play a primary part in the production of bone cysts and giant cell tumors. Trauma may avulse the periosteum and interrupt the blood supply of the cortical bone. Normal vascular channels are thus supplanted by a subperiosteal hematoma. This is supported by the asymmetrical, subcortical location of the tumor in the epiphysis, adjacent to the site of trauma (2-6 months). The interrupted periosteal blood supply is replaced by medullary circulation, which takes place only after osteoclasts have opened up channels in the bone for the budding capillaries of the medullary circulation. Osteoclastic activity in the region is already abundant and when unnourished cortical bone is undergoing necrosis results in an unbalance with hyperplasia of osteoclasts and a tissue characteristic of giant cell tumor and the early phase of osteitis fibrosa cystica. In the metaphysis the cortical bone is thicker and more vascular and is capable after a time of checking the osteoclasts resulting in a bone cyst.

Additional metabolic factors may enter into the production of the unbalance which results in the production of multiple giant cell tumors and bone cysts. Increase in parathyroid hormone alone, however, does not produce single true giant cell tumors, although giant cell areas and osteitis-

fibrosa-like tissue may be found in the bone in animals fed with an excess of this substance. Supporting this is the fact that repeated serum calcium and phosphorus in patients with single lesions of giant cell tumor and bone cysts are normal.

Microscopic structure of giant cell tumors—30 multi-nucleated giant cells are usually present per low power field containing 15-200 nuclei each. The cells range from 10-100 microns in diameter. Border may not be distinct. Giant cells with less than 15 nuclei are more characteristic of osteitis fibrosa and osteogenic sarcoma.

The stroma consists of two cell types, round and spindle cells, the round cells outnumbering spindle cells in typical cases.

Hemorrhage is a consistent finding and may be undergoing organization. Spicules of bone are usually seen surrounded by osteoclasts.

Variants of this typical histology occur and there is some correlation with clinical recurrences. The so-called spindle cell variant consists of a zone of spindle cells surrounding the cystic area, this is an indication of healing, follow up of these shows them to resemble benign bone cysts. These are usually located in other than the long pipe bones, i.e. vertebrae, flat bones, fingers.

Recurrent cases observed are often characterized by an initial typical histologically benign giant cell tumor. Recurrences were due to a poor selection of type of treatment or incomplete treatment of the type selected.

In judging malignant variants, changes due to irradiation, infiltration of adjacent tissue, partial healing with fibrosis, infection, recurrence, necrosis and development of osteogenic sarcoma have to

be considered. Geschickter and Copeland do not recognize a malignant giant cell tumor. Tumors which show malignant features and metastasize are considered to be variants of osteogenic sarcoma. Stewart² however describes malignant metastasizing giant cell tumors.

Treatment — Includes amputation, resection, curettage and cauterization and irradiation. Selection depends primarily on whether it is a recurrence. If primary and in lower femur or upper tibia and not too far advanced, curettage with cauterization is advocated, although recurrence with this method may be as high as 25%. In advanced cases in fibula, ulna or radius, resection is preferred. In early cases and in vertebral lesions deep X-ray therapy may be given a trial. With recurrence resection is the treatment of choice, or where this amounts to amputation, further curettage, cauterization and filling the cavity with bone chips. Repeated irradiation is dangerous and may be followed by osteogenic sarcoma.

In deciding on treatment age must be considered. There is a definite tendency for giant cells to recur more frequently after the age of 30 years. The location of the lesion must also be considered, the lower end of the radius is the commonest site for recurrence. This is attributable to the thinner shell of cortical bone as compared to the lower femur, with rupture through the shell into adjacent tissue. The most valuable asset in the cure of giant cell tumor is the preserved shell of cortical bone with intact blood supply.

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SURGERY

Edited by S. S. Peikoff, M.D.

Buttock—Rotation Flap For Pilonidal Disease

N. P. Merkeley, F.R.C.S.(C)

During the recent World War, pilonidal disease and its surgical management gained a place of great importance. This condition which afflicted thousands in the services and became popularly known as "Jeep Disease," was a source of considerable morbidity. Serious attempts were made to reduce this morbidity as attested by the number of publications which appeared, and varied surgical techniques which were evolved.

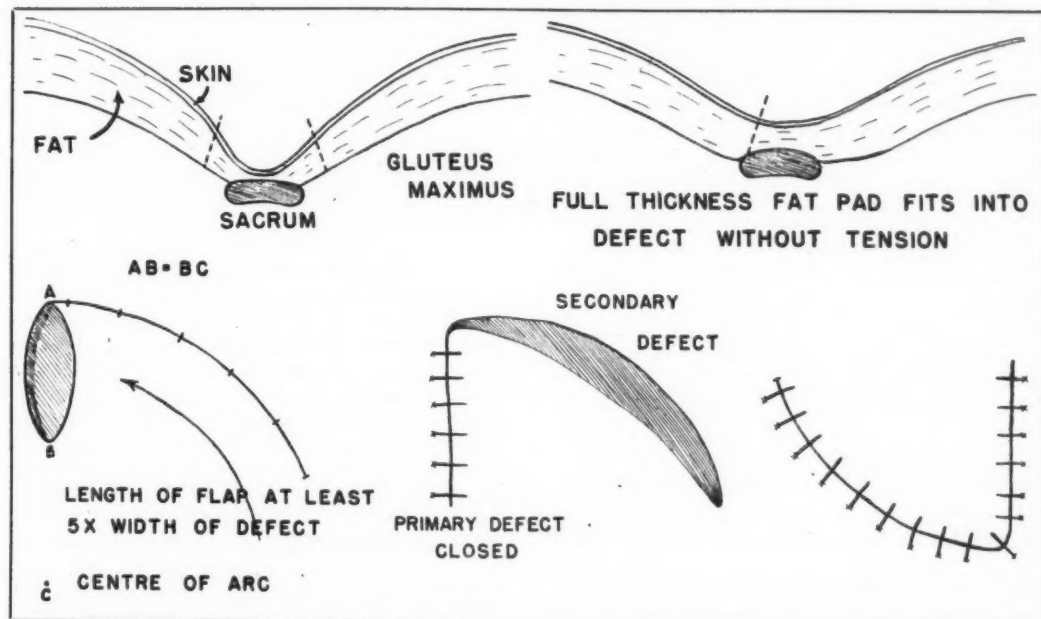
Block excision of the involved tissues followed by primary closure generally became the procedure of choice, and replaced to a large extent, excision with packing, which entailed a prolonged period of healing. Many methods of primary closure, along with muscle and fascial flaps, were devised with the aim of obliterating the dead space in the wound. However, the anatomical peculiarities of the region involved, make tensionless closure and obliteration of dead space difficult, consequently, with too prevalent hematoma formation and resultant recurrent sinuses. Inability to satisfactorily obliterate dead space is still more accentuated in recurrent and extensive pilonidal disease where skin has been sacrificed. It would thus seem that some method of tensionless closure, with complete obliteration of dead space would be the answer to

the problem. This is best achieved by some form of buttock-rotation flap, where full thickness buttock skin, plus fat is shifted to fill the defect after excision. The thick fat pad fits well into the defect without tension and adequately obliterates the dead space over the sacrum and coccyx.

Technique involved in this type of closure is the fashioning of a single buttock-rotation flap, which is raised on the gluteal muscle level and then shifted. First the primary wound is closed with drainage and then the secondary defect easily approximated.

A typical case treated by this method is—white male, age 25 years, with a discharging sinus over the sacrum for several months. In May, 1945, excision of the pilonidal sinus and primary suture of the defect was done. The wound healed, but the discharge recurred in August, 1945, and persisted. In March, 1946, the area was re-excised and packed open. This resulted in incomplete healing of the wound with the patient still hospitalized (5 months). In August, 1946, the area was excised again and a buttock-rotation flap done. On August 30, 1946, the wound was healed, and the patient was discharged from the hospital on September 9, 1946, and has had no recurrence since.

This method has resulted in success in the difficult "recurrent" cases, some of which have been previously operated upon four or five times. Complete wound healing usually takes place in two to three weeks, thus hospitalization is greatly reduced.



GYNECOLOGY

Edited by R. Lyons, B.A., M.R.C.S., L.R.C.P., M.R.C.O.G.

The Rh Factor in Pregnancy

G. Stuart Musgrove*

B.Sc., M.D., F.R.C.S. (C), M.R.C.O.G.

Explanatory Note:

Popular magazines have from time to time during the past few years brought to the attention of the public the existence of the so-called "Rh Factor" and have mentioned with varying degrees of accuracy and clarity some effects of this Factor when associated with pregnancy.

Now that it is—or **should be**—the practice to determine the Rh type of every pregnant woman it becomes necessary to inform most women who prove to be Rh negative that they will have to have repeated blood samples taken during the course of pregnancy. Most intelligent women will, when this is explained to them, wish to know just how the fact that she happens to be Rh negative is going to affect her and her unborn infant, and why should more blood samples be necessary or of any value.

In a busy practice few doctors can take the time required to offer a **satisfactory** explanation: only recently have I been impressed by the fact that many Rh negative women worry a great deal more about possible dangers than one would suspect from office conversation during antenatal visits; that is, what was considered to be an adequate explanation previously given merely alarmed the patient without giving any genuine reassurance.

The following material was prepared in the first instance with a view to having it printed as a small pamphlet for the use of all Rh negative pregnant women encountered in private practice. I have been persuaded, however, that what I have prepared would also be of interest to many doctors who have not had the time or perhaps patience to digest the voluminous literature on the subject—a literature that for the most part has become increasingly more complex and difficult to follow.

I make no apology for the over-simplification of what follows, or for the occasional statement which is not strictly accurate. I believe, however, that it does present the subject just about as simply as is consistent with an acceptable degree of accuracy.

I. What is the Rh Factor?

In addition to the well known "Blood Groups" which are of importance in matching blood for transfusions a person's blood carries other factors

of varying importance. In 1941 a new factor was found when the blood reactions of monkeys were being investigated. Since the breed of monkey used was the "Rhesus," this new blood factor was called the "Rhesus Factor"; abbreviated to "Rh Factor." Further investigation showed that the blood of the human race carries this same Rh factor.

After testing the blood of thousands of men, women and children it was found that 85% of the white race (male and female) are Rh positive and the remaining 15% Rh negative.

II. What constitutes the Rh Factor?

The sex cells of every person (sperm in the male and ovum or egg in the female) contains many "genes," the elements which pass on hereditary characteristics to children, e.g., the color of hair and eyes, facial features, blood group, etc. These genes are in pairs, and one such pair (actually a series of pairs, but for simplicity it is only necessary to consider them as a single pair) carries the Rh factor. Each half of this pair may be either Rh positive or Rh negative, but once determined in an individual person it never changes during that person's lifetime.

The possible combinations of Rh pairs are:

(1)	<div style="border: 1px solid black; padding: 2px; display: inline-block;">+</div>	<div style="border: 1px solid black; padding: 2px; display: inline-block;">+</div>
(2)	<div style="border: 1px solid black; padding: 2px; display: inline-block;">+</div>	<div style="border: 1px solid black; padding: 2px; display: inline-block;">-</div>
(3)	<div style="border: 1px solid black; padding: 2px; display: inline-block;">-</div>	<div style="border: 1px solid black; padding: 2px; display: inline-block;">-</div>

It is important to note that the positive factor outweighs the negative. Thus, when a pair of Rh genes consists of one positive and one negative gene (example (2) above) the possessor is **always** Rh positive. Technically, such a mixed pair of genes is spoken of as "heterozygous Rh positive," while a pair in which both genes are positive (example (1) above) is called "homozygous Rh positive."

In the case of an Rh negative person BOTH the Rh genes are always negative.

III. What happens during reproduction?

During the process of fertilization of the ovum (egg) the elements of both the ovum and sperm split in half; one half of each is discarded and the

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* From the Department of Obstetrics and Gynaecology, Winnipeg General Hospital.

remaining halves unite, thus giving the fertilized ovum the same total number of "elements" as each of the original ovum and sperm.

This splitting of the ovum and sperm divides the pair of Rh genes, one of which is discarded from each sex and the remaining two join up to form the Rh pair of genes of the new being (infant).

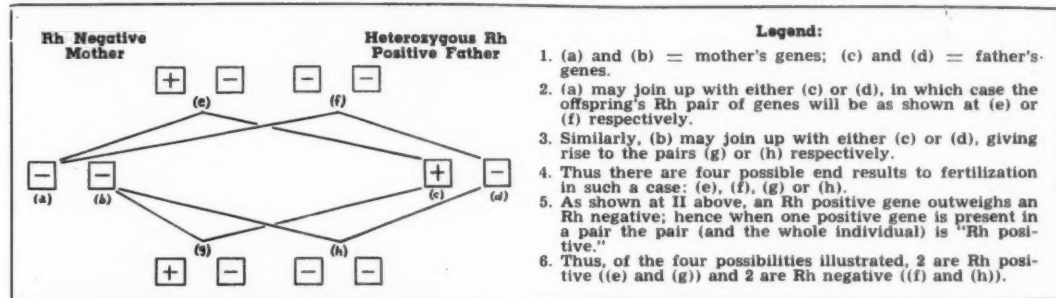
Anyone mathematically inclined can, by using the symbols shown under II above, calculate all the possible combinations of genes which might occur during the process of fertilization. For the purposes of this simplified explanation it is not necessary, however, to go into all these possibilities, as will be shown below.

IV. When does an Rh Reaction occur?

(a) Only when the mother is Rh negative and the father is Rh positive.

(b) Further, it **only** occurs when the infant is (like the father) Rh positive and the mother is Rh negative. The significance of this is that in any given case in which the mother is Rh negative and the father is "heterozygous Rh positive" (see II, example (2)) there is a 50% chance that the offspring may be either Rh negative or Rh positive.

This can be simply illustrated, remembering (as shown at III) that one gene of each of the mating pairs of Rh genes is discarded during fertilization of the ovum.



V. Whom does an Rh Reaction affect.

Only the baby (so far as pregnancy is concerned).

VI. What happens to cause the Reaction?

(Remember that the baby **must** be Rh positive and the mother Rh negative).

While the mother is carrying the baby in her womb there is NO direct connection between her blood vessels and those of the baby; the baby receives its oxygen, nourishment and minerals through the placenta (after-birth) and umbilical cord. The placenta forms an effective barrier to the passage of both the mother's and baby's red blood cells even though the barrier is bathed on one side by maternal blood and on the other by the child's.

However, minute tears in this barrier may occur and some of the baby's red blood cells then

get through into the maternal circulation (blood vessels). When this occurs in a case such as we are discussing (Rh negative mother and Rh positive baby) the baby's red cells which get into the mother's blood vessels are "foreign bodies," since they are Rh positive in an Rh negative environment. Like other kinds of "foreign bodies" (e.g., typhoid bacteria, etc.) which may enter the blood stream, they stimulate the mother's system to produce "antibodies." The function of an "antibody" is to destroy the "foreign body" concerned.

Thus, the "antibodies" which the mother produces against the baby's Rh positive red blood cells will destroy them. When and if sufficient of this specific antibody is produced by the mother some of it may spill over through the placental barrier and begin to destroy the baby's red cells in its own body.

VII. When is an Rh Reaction likely to occur?

That is, under what circumstances will sufficient maternal "antibodies" spill through the placental barrier to cause appreciable harm to the infant?

(a) **Rarely during a first pregnancy.** Even if some of the baby's antagonistic red blood cells do get through the placental barrier enough antibodies are not produced "the first time" to do any serious harm. Once formed, however, they remain in the

mother's system and are cumulative if there are further antagonistic pregnancies.

Exceptions to this rule are:

- The mother has had previous miscarriages.
- The mother has had a previous blood transfusion of antagonistic Rh blood; i.e., she was given Rh positive blood when she was Rh negative. (This seldom occurs now-a-days, but remember that the Rh factor was only discovered a few years ago).

In such cases as these the first baby **might** be affected.

(b) The baby of a second or subsequent pregnancy **may** be affected, but NOT NECESSARILY SO.

(c) It is more likely to occur with each subsequent pregnancy, and likely to be more severe with

each subsequent baby after one has been affected.

Exception:

As shown at IV above, IF the husband is "heterozygous Rh positive" there is a 50% chance that any one offspring (when the mother is Rh negative) might be Rh negative; when this occurs there will be **No Rh Reaction**, even though the last pregnancy terminated with the offspring severely affected due to Rh antibody activity.

VIII. When an Rh Reaction occurs how and why is the baby affected?

(a) As explained at VI above, the **basic reaction** is one between the mother's "antibodies" and the infant's red blood cells, the result of which is destruction of the latter causing anaemia.

(b) The severity of the reaction in any given case is determined by the **amount** of the antibody produced by the mother, and **more specifically**, how much of it gets through the placental barrier into the infant's blood vessels.

(c) As pointed out at VII (c) above, the reaction is likely to be progressively more severe with each subsequent antagonistic pregnancy. This is because of the cumulative effect mentioned at VII (a).

(d) There are all grades of reaction and effects on the offspring from so mild as to be of no importance to so severe as to cause death of the infant before birth. It must be remembered, however, that **this is a cumulative condition** and that **"the fatal form" does not occur** until previous children have been more and more severely affected, or under circumstances which occur so rarely as to be practically dismissed.

IX. What can be done about a potential Rh Reaction?

(a) **Determine when an Rh Reaction might occur:**

i. Every pregnant woman should have her Rh factor determined. That is, the doctor concerned should send a sample of her blood to a reliable laboratory to be tested.

ii. If the laboratory reports that the blood is Rh positive NO Rh reaction can occur.

iii. If Rh negative blood is reported careful enquiry must be made concerning:

The health of previous children during the first few days and weeks after birth; or if a child was born dead try to ascertain the exact cause of death.

Has the mother had a blood transfusion for any reason? If so, unless it is definitely known that she had Rh negative blood given it should be assumed that it was Rh positive and that an Rh reaction may be expected which may affect the baby—until proven otherwise.

The husband's blood should be tested for Rh factor. If it also proves to be Rh negative NO Rh Reaction will occur (with extremely rare excep-

tions). If it is reported as positive it may be possible to determine (depending upon the laboratory facilities available) whether he is "heterozygous" or "homozygous" Rh positive (see II above)—but this is mainly of academic interest to the doctor and those in charge of the Rh laboratory.

(b) When the possibility of an Rh Reaction is suspected:

i. Send samples of the mother's blood to the Rh laboratory periodically during the pregnancy with the request that the titre (amount) of Rh antibody be determined.

If no antibodies are found (including the so-called "blocking antibodies") the infant is not in Rh danger.

If successive blood tests show that the mother's Rh titre is rising then it is likely that the infant will be affected—but **NOT always**. (If the infant proves to be unaffected under these circumstances it can be explained by saying that although there was a heavy production of antibodies in the mother's blood they did not manage to get through the placental barrier to attack the infant's blood. This explanation is not scientifically adequate).

ii. When it is expected (from the Rh laboratory reports and advice) that the infant will be affected, arrangements should be made for the mother to be delivered in a hospital where the infant can be given an immediate blood transfusion **if one is required**. This latter point should be determined by a technician from the Rh laboratory who is present at the time of the delivery of the infant. If a transfusion is indicated it is given by a doctor from or associated with the Rh laboratory—who is also present at the delivery and all set up to give the transfusion at once.

iii. Rarely, if the maternal Rh antibody titre is rising rapidly during the eighth or early ninth month of pregnancy, a Caesarean section might be done to remove the infant from the antagonistic environment in the womb before fatal damage is done. This procedure is at best a gamble, however, because there is no means yet available by which the amount of damage to the infant can be determined accurately before it is born.

X. Conclusions:

(a) Remember the Rh Reactions, and especially severe Reactions, are rare.

(b) With adequate prenatal supervision cases likely to terminate with an Rh Reaction can be detected early.

(c) A severe Rh Reaction with a previous pregnancy does **NOT** necessarily mean that the next child will be affected.

(d) When an Rh Reaction is expected there are means at our disposal now to save all but the most severely affected infants.

(e) The mother is **NEVER** affected by even the most severe Rh Reaction of pregnancy.

PAEDIATRICS

Edited by S. Isaacs, M.D.

A Case of Osteogenesis Imperfecta

C. E. Acheson, M.D.
Gladstone, Man.

I would like to report a case of Osteogenesis Imperfecta Congenita born in Gladstone General Hospital, Jan. 1, 1949. This child was two weeks premature and our first impression was that it had talipes-equino-varus. On closer inspection, however, it was seen that the following abnormalities were present on which the diagnosis of Osteogenesis Imperfecta Congenita was based.

The feet were not deformed but the Tibiae and fibulae were markedly curved as shown in the X-ray. The skull consisted of many separate small



bones, joined together only by membrane, each bone being individually mobile. The bones were soft. The Parietal region bulged in such a manner that the ears appeared to be placed lower than normal on the head. The sclerae appeared bluer

than normal. The left hand showed marked wrist drop which has since disappeared. The chest and abdomen were normal but the femorae were angulated (as shown in X-ray).

This disease is characterized by an increased fragility of the bones, which are easily fractured by slight trauma. In severe cases fractures occur in utero and the infants are born with deformities since the bones usually heal in abnormal positions (see X-ray). Fractures also frequently occur during delivery. This appears to be a systemic disease in which a defective mesenchyme is responsible for the various symptoms (sclerae, bones and ligaments). The bony cortex is thin, but no characteristic histological changes are described. In severe cases the chest and spine may also be deformed. Fractures of extremities in post-natal life result from otherwise inconsequential trauma. Healing takes place rapidly but often results in inferior and rarified bone, which bends or fractures easily. Blood serum calcium and phosphorus levels are normal.

This child was handled as little as possible and was not even weighed until a week old when it was 4 pounds, 4 ounces. It gained steadily and was sent home at 4 weeks of age weighing 4 pounds, 14 ounces.

Another and possibly related condition is Osteogenesis Imperfecta Tarda. Here fractures do not occur till 1-2 years and the tendency to fracture bones easily disappears at puberty. It is usually milder, and hereditary. The bones of the extremities are long and slender. The flaccidity of ligaments and muscles may result in frequent dislocation. Deafness is a late manifestation.

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Medico-Historical

J. C. Hossack, M.D., C.M. (Man.)

Rough Doctors

The famous Dr. Mead (1673-1754) was not one to hide his feelings. His prominence was due partly to his association with Radcliffe, partly to his ability but more perhaps, to his politics. When Queen Anne was suffering from her last illness Mead was called to see her and prophesied that she could not live an hour. Actually she survived until the next day but his forecast apparently raised the energies of the Whigs and they made immediate preparations for securing the Hanoverian succession for which important event, according to Miss Strickland, we are mainly indebted to Mead's prognosis.

In the days of Anne and her successor it was usual for courtly physicians to wear their swords while visiting their patients. For the most part the sword was an ornamental accoutrement much less used and useful than the cane which was its successor. Yet on occasion it was employed to let blood in the way swords usually let blood, and on rare occasions it was employed to settle arguments between doctors. To us it is a very shocking thing to hear of two medical men of high standing drawing their swords upon each other and fighting like a couple of touchy courtiers in the open street. Nevertheless such a duello actually took place between Mead and Woodward. During the engagement Woodward, making a false step, fell, and Mead called upon him to submit and beg his life. Woodward satirically answered, "Not until I am your patient," but a moment later laid his sword at Mead's feet. There were doubtless other such incidents which, because of the obscurity of the participants, have not been recorded.

Another firebrand was Grey the celebrated Dorsetshire physician who died in 1612. He is described as "a little desperate doctor, commonly wearing a pistol about his neck." One day a sheriff's officer disguised as a pedlar served Grey with a writ. The doctor caught the fellow by the ends of his collar and drawing out a "great run-dagger" broke his head in three places. The unfortunate process-server by dint of much struggling managed to slip his head out of his cloak and fled, leaving his garment in the hands of Grey. The officer then complained to the magistrate that Grey had stolen his cloak. Grey vehemently denied the accusation and tearing the cloak into shreds told the fellow to "look for his lousy rags in the kennel."

It would appear that Grey took delight in flouting the law for he led a body of wild young gentlemen whom he called his sons and who, on one

occasion, invaded the assizes and staged a drinking party meanwhile daring the sheriff to touch one of them. Then the party over, Grey blew his horn (a curious appendage for a physician) and rode away with his friends.

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attempted many. Four constables were there raised to appease the tumult; who, all too late for his safety, brought him to the Counter in the Poultry, where he was bestowed upon command of the lord mayor. For, before he was brought thither, the people had had him down, and with stones and cudgels, and other weapons, had so beaten him that his skull was broken, and all parts of his body bruised and wounded, whereupon, though surgeons in vain were sent for, he never

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Identification of Tumors is not intended to be a synopsis of oncology. In the author's own words, it is meant to serve as a brief guide to the identity of tumors and to stimulate further studies of these tumors in larger works. This is a ready reference which may be used by practitioners, residents in surgery or pathology, and surgeons as a guide to further reading or as a source for the sketch of essential features of any tumor.

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each subsequent baby after one has been affected.

Exception:

As shown at IV above, IF the husband is "heterozygous Rh positive" there is a 50% chance that any one offspring (when the mother is Rh negative) might be Rh negative; when this occurs there will be **No Rh Reaction**, even though the last pregnancy terminated with the offspring severely affected due to Rh antibody activity.

VIII. When an Rh Reaction occurs how and why is the baby affected?

(a) As explained at VI above, the **basic reaction** is one between the mother's "antibodies" and the infant's red blood cells, the result of which is destruction of the latter causing anaemia.

(b) The severity of the reaction in any given case is determined by the **amount** of the antibody produced by the mother, **and more specifically**, how much of it gets through the placental barrier into the infant's blood vessels.

(c) As pointed out at VII (c) above, the reaction is likely to be progressively more severe with each subsequent antagonistic pregnancy. This is because of the cumulative effect mentioned at VII (a).

(d) There are all grades of reaction and effects on the offspring from so mild as to be of no importance to so severe as to cause death of the infant before birth. It must be remembered, however, that **this is a cumulative condition** and that **"the fatal form" does not occur** until previous children have been more and more severely affected, or under circumstances which occur so rarely as to be practically dismissed.

IX. What can be done about a potential

Rh Reaction?

(a) **Determine when an Rh Reaction might occur:**

i. Every pregnant woman should have her Rh factor determined. That is, the doctor concerned should send a sample of her blood to a reliable laboratory to be tested.

ii. If the laboratory reports that the blood is Rh positive NO Rh reaction can occur.

iii. If Rh negative blood is reported careful enquiry must be made concerning:

The health of previous children during the first few days and weeks after birth; or if a child was born dead try to ascertain the exact cause of death.

Has the mother had a blood transfusion for any reason? If so, unless it is definitely known that she had Rh negative blood given it should be assumed that it was Rh positive and that an Rh reaction may be expected which may affect the baby—until proven otherwise.

The husband's blood should be tested for Rh factor. If it also proves to be Rh negative NO Rh Reaction will occur (with extremely rare excep-

tions). If it is reported as positive it may be possible to determine (depending upon the laboratory facilities available) whether he is "heterozygous" or "homozygous" Rh positive (see II above)—but this is mainly of academic interest to the doctor and those in charge of the Rh laboratory.

(b) **When the possibility of an Rh Reaction is suspected:**

i. Send samples of the mother's blood to the Rh laboratory periodically during the pregnancy with the request that the titre (amount) of Rh antibody be determined.

If no antibodies are found (including the so-called "blocking antibodies") the infant is not in Rh danger.

If successive blood tests show that the mother's Rh titre is rising then it is likely that the infant will be affected—but **NOT always**. (If the infant proves to be unaffected under these circumstances it can be explained by saying that although there was a heavy production of antibodies in the mother's blood they did not manage to get through the placental barrier to attack the infant's blood. This explanation is not scientifically adequate).

ii. When it is expected (from the Rh laboratory reports and advice) that the infant will be affected, arrangements should be made for the mother to be delivered in a hospital where the infant can be given an immediate blood transfusion **if one is required**. This latter point should be determined by a technician from the Rh laboratory who is present at the time of the delivery of the infant. If a transfusion is indicated it is given by a doctor from or associated with the Rh laboratory—who is also present at the delivery and all set up to give the transfusion at once.

iii. Rarely, if the maternal Rh antibody titre is rising rapidly during the eighth or early ninth month of pregnancy, a Caesarean section might be done to remove the infant from the antagonistic environment in the womb before fatal damage is done. This procedure is at best a gamble, however, because there is no means yet available by which the amount of damage to the infant can be determined accurately before it is born.

X. Conclusions:

(a) Remember the Rh Reactions, and especially severe Reactions, are rare.

(b) With adequate prenatal supervision cases likely to terminate with an Rh Reaction can be detected early.

(c) A severe Rh Reaction with a previous pregnancy does NOT necessarily mean that the next child will be affected.

(d) When an Rh Reaction is expected there are means at our disposal now to save all but the most severely affected infants.

(e) The mother is NEVER affected by even the most severe Rh Reaction of pregnancy.

PAEDIATRICS

Edited by S. Isaacs, M.D.

A Case of Osteogenesis Imperfecta

C. E. Acheson, M.D.
Gladstone, Man.

I would like to report a case of Osteogenesis Imperfecta Congenita born in Gladstone General Hospital, Jan. 1, 1949. This child was two weeks premature and our first impression was that it had talipes-equino-varus. On closer inspection, however, it was seen that the following abnormalities were present on which the diagnosis of Osteogenesis Imperfecta Congenita was based.

The feet were not deformed but the Tibiae and fibulae were markedly curved as shown in the X-ray. The skull consisted of many separate small



bones, joined together only by membrane, each bone being individually mobile. The bones were soft. The Parietal region bulged in such a manner that the ears appeared to be placed lower than normal on the head. The sclerae appeared bluer

than normal. The left hand showed marked wrist drop which has since disappeared. The chest and abdomen were normal but the femorae were angulated (as shown in X-ray).

This disease is characterized by an increased fragility of the bones, which are easily fractured by slight trauma. In severe cases fractures occur in utero and the infants are born with deformities since the bones usually heal in abnormal positions (see X-ray). Fractures also frequently occur during delivery. This appears to be a systemic disease in which a defective mesenchyme is responsible for the various symptoms (sclerae, bones and ligaments). The bony cortex is thin, but no characteristic histological changes are described. In severe cases the chest and spine may also be deformed. Fractures of extremities in post-natal life result from otherwise inconsequential trauma. Healing takes place rapidly but often results in inferior and rarified bone, which bends or fractures easily. Blood serum calcium and phosphorus levels are normal.

This child was handled as little as possible and was not even weighed until a week old when it was 4 pounds, 4 ounces. It gained steadily and was sent home at 4 weeks of age weighing 4 pounds, 14 ounces.

Another and possibly related condition is Osteogenesis Imperfecta Tarda. Here fractures do not occur till 1-2 years and the tendency to fracture bones easily disappears at puberty. It is usually milder, and hereditary. The bones of the extremities are long and slender. The flaccidity of ligaments and muscles may result in frequent dislocation. Deafness is a late manifestation.

REMEMBER

Winnipeg Medical Society BENEVOLENT FUND

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Medico-Historical

J. C. Hossack, M.D., C.M. (Man.)

Rough Doctors

The famous Dr. Mead (1673-1754) was not one to hide his feelings. His prominence was due partly to his association with Radcliffe, partly to his ability but more perhaps, to his politics. When Queen Anne was suffering from her last illness Mead was called to see her and prophesied that she could not live an hour. Actually she survived until the next day but his forecast apparently raised the energies of the Whigs and they made immediate preparations for securing the Hanoverian succession for which important event, according to Miss Strickland, we are mainly indebted to Mead's prognosis.

In the days of Anne and her successor it was usual for courtly physicians to wear their swords while visiting their patients. For the most part the sword was an ornamental accoutrement much less used and useful than the cane which was its successor. Yet on occasion it was employed to let blood in the way swords usually let blood, and on rare occasions it was employed to settle arguments between doctors. To us it is a very shocking thing to hear of two medical men of high standing drawing their swords upon each other and fighting like a couple of touchy courtiers in the open street. Nevertheless such a duello actually took place between Mead and Woodward. During the engagement Woodward, making a false step, fell, and Mead called upon him to submit and beg his life. Woodward satirically answered, "Not until I am your patient," but a moment later laid his sword at Mead's feet. There were doubtless other such incidents which, because of the obscurity of the participants, have not been recorded.

Another firebrand was Grey the celebrated Dorsetshire physician who died in 1612. He is described as "a little desperate doctor, commonly wearing a pistol about his neck." One day a sheriff's officer disguised as a pedlar served Grey with a writ. The doctor caught the fellow by the ends of his collar and drawing out a "great ruff-dagger" broke his head in three places. The unfortunate process-server by dint of much struggling managed to slip his head out of his cloak and fled, leaving his garment in the hands of Grey. The officer then complained to the magistrate that Grey had stolen his cloak. Grey vehemently denied the accusation and tearing the cloak into shreds told the fellow to "look for his lousy rags in the kennel."

It would appear that Grey took delight in flouting the law for he led a body of wild young gentlemen whom he called his sons and who, on one

occasion, invaded the assizes and staged a drinking party meanwhile daring the sheriff to touch one of them. Then the party over, Grey blew his horn (a curious appendage for a physician) and rode away with his friends.

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The Manual is available through the Dominion Bureau of Statistics, Health and Welfare Division.

The International Conference for the Sixth Decennial Revision of the International List of Diseases and Causes of Death was held in Paris in April, 1948, and was immediately followed by a session of the Expert Committee in Geneva. The Canadian delegation, led by Dr. F. S. Burke, consisted of Dr. J. Wyllie, Dr. J. A. Melanson, Chief Medical Officer and Registrar General, New Brunswick, Mr. J. T. Marshall and Miss W. O'Brien. During the following months the work on the Index to the new classification was completed, with Miss W. O'Brien working on the Index Subcommittee of the Expert Committee.

The first World Health Assembly at its meeting in Geneva in June and July, 1948, with Canada represented by Dr. G. D. W. Cameron, Deputy Minister of Health, Department of National Health and Welfare, followed the recommendations of the International Revision Conference and adopted the new Classification and regulations for its application (WHO Regulations No. 1). This action was, for Canada, unanimously approved without reservation by the Vital Statistics Council for Canada at its meeting in October, 1948. WHO Regulations No. 1 were also submitted to the members of the Technical Medical Advisory Committee on Vital Statistics to the Dominion Statistician, and were approved by that body.

In accordance with the decisions of the Vital Statistics Council for Canada and the Technical Medical Advisory Committee on Vital Statistics to the Dominion Statistician, the Department of External Affairs has been advised that Canada is prepared to accept without reservations the new Classification and the related Regulations.

Coding, according to the new International Statistical Classification of Diseases, Injuries and Causes of Death, will be commenced for the official national tabulations of mortality statistics appearing in the Annual Reports on Vital Statistics, from January 1st, 1950, but for comparative purposes tabulations will be made according to both the 1938 and 1948 Revisions for at least two years beginning January 1st, 1949.

Medical X-ray Protection Up To Two Million Volts

The increasing use of high-energy X-rays in medical diagnosis and treatment has presented new problems in all phases of radiation protection and shielding. Recommended standards of safety for the installation and use of high-voltage X-ray

equipment are concisely set forth in a new handbook, *Medical X-ray Protection up to Two Million Volts*, published by the National Bureau of Standards.

This handbook was written by a subcommittee of the National Committee on Radiation Protection composed of representatives of radiological societies, electrical societies, and the National Bureau of Standards. It contains instructions for meeting presently accepted standards as well as advisory recommendations that should be applied where possible. Rules are given for working conditions, survey and inspection of installations, planning an X-ray installation, structural details of protective barriers, and specific types of installations. A chapter on electrical protection treats such topics as high-voltage circuits, grounding inspection and maintenance, warnings and instructions, and first aid and fire extinguishing devices. Also included are tables and graphs for determining the requirements of protective barriers and distance protection in specific cases.

National Bureau of Standards Handbook 41, *Medical X-ray Protection up to Two Million Volts*, 49 pages, 6 line cuts, 9 tables, 15 cents, obtainable from the Superintendent of Documents, U.S. Government Printing Office, Washington 25, D.C. Remittances from foreign countries must be in U.S. exchange and must include an additional sum of one-third the publication price to cover mailing costs.

Course in Gastrointestinal Surgery

The National Gastroenterological Association, in co-operation with the Post-graduate Division of Tufts College Medical School and the First and Second Surgical Services of the Boston City Hospital, announces a course in gastrointestinal surgery to be given at the Boston City Hospital, Boston, Mass., on October 27, 28, 29, 1949.

The course will cover various phases of gastrointestinal surgery. It will be under the personal direction of Dr. Owen H. Wangensteen, Professor of Surgery, University of Minnesota Medical School, assisted by Lord Alfred Webb-Johnson, President of the Royal College of Surgeons, London, England, and the members of the surgical staff of the Boston City Hospital, as well as other distinguished guests.

Enrollment in the course is limited to 250. The fee will be \$35.00 per person. Veterans may take this course under the G.I. Bill of Rights.

For further information and enrollment write to the National Gastroenterological Association, Dept. GSJ, 1819 Broadway, New York 23, N.Y.

Epidemiological Survey

The University of Manitoba Faculty of Medicine, through its Department of Social and Preventive Medicine, is conducting an epidemiological survey of multiple sclerosis in Greater Winnipeg. The studies are made possible through co-operation of the Winnipeg Medical Society and the Winnipeg Hospital Association. The survey is the one of six regional studies being sponsored by the Multiple Sclerosis Society of Canada and financed by a grant-in-aid from the National Multiple Sclerosis Society, a private foundation formed three years ago in the United States to stimulate, co-ordinate and finance research into the causes and effective treatment of multiple sclerosis. Other regional studies now in progress or planned for the near future include studies in Boston, New Orleans, San Francisco, Denver and Rochester, Minnesota, all conducted in co-operation with local schools of medicine or public health.

The purpose of the multiple sclerosis survey is to determine the prevalence and distribution of multiple sclerosis and to evaluate apparent differences in morbidity and mortality related to geography, climate, race and other factors. Neurologists and epidemiologists believe this understanding of case distributions to be a fundamental step towards improved knowledge of the etiology of the disease and of its practical control. It is anticipated that this study now under way will provide information of real value and interest to physicians of Winnipeg.

In the Winnipeg area cases of multiple sclerosis diagnosed in hospitals during the past ten years are being reviewed. All local physicians have been requested by individual letter to provide information on patients with multiple sclerosis seen within the past five years. Appropriate forms have been provided. The data collected will be used only for statistical purposes with no reference to individual patients or separate case reports.

The members of the survey committee at the University note with pleasure the excellent co-operation of the Greater Winnipeg physicians in this study and wish to take this opportunity to thank all those who have promptly replied to inquiries. When the survey is completed, a report on the local and national results will be prepared for distribution.

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Group Practice For Sale

Excellent opportunity to buy one-third interest in group practice situated in medical centre of Winnipeg. Price includes share of X-ray equipment, office and waiting room furniture, balance of pre-paid rent on 5-year lease. Specialist preferred. No goodwill involved. For further particulars apply Box 712, Manitoba Medical Review.

Medical Books For Sale

The following books, all in good condition. Latest editions except where indicated:

Textbook of Surgical Treatment—Illingsworth, 2nd. \$6.00.
Textbook of Surgery—Christopher, \$8.00.
Radiology for Students—Hodges, etc., \$4.50.
Surgical Errors and Safeguards—Thorek, \$12.00.
Diseases of the Chest—Rubin, \$11.00.
Combined Textbook of Obstetrics and Gynecology—Munro, Kerr, Young, etc., \$8.00.
Textbook of Gynecology—Curtis, \$6.00.
Treatment by Manipulation—Fisher, 4th, \$3.50.
Minor Surgery—Christopher, 5th, \$6.00.
Urologic Practice—Ockerblad & Carlson, \$4.00.
Treatment of Arthritis and Rheumatism—Aschner, \$4.00.
Anus, Rectum, and Sigmoid Colon—Bacon, 2nd, \$6.00.
Diagnosis in Daily Practice—White & Geschickter, \$12.00.
Gynecology and Obstetrics—C. H. Davis, \$30.00.
(Loose Leaf, up to date, service transferable, \$2.00 per year.)

J. A. McNeill, M.D., c/o H. A. McNeill,
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Liver Extract Injectable (15 units per cc.) as prepared by the Connaught Medical Research Laboratories is supplied in packages containing *single* 5-cc. vials and in multiple packages containing *five* 5-cc vials.

ALSO AVAILABLE

Liver Extract for Oral Use in powdered form is supplied in packages containing ten vials; each vial contains extract derived from approximately one-half pound of liver.

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Manitoba Medical Association

(Canadian Medical Association, Manitoba Division)

Tentative Annual Meeting Programme

Royal Alexandra Hotel - Winnipeg

September 20, 21 and 22

Tuesday, September 20th

Morning

9.00 Registration

10.00 The Problems of Premature Delivery.
Dr. N. W. Philpott, Montreal.

11.00 The Operation of Concer Services in
Saskatchewan.
Dr. T. A. Watson, Saskatoon.

Noon

12.30 Luncheon

Afternoon

2.00 The Treatment of Arthritis from the Stand-
point of the General Practitioner.
Dr. Wallace Graham, Toronto.

2.45 Psychogenic Rheumatism.
Dr. John Matas — Report.

3.15 Intermission

3.30 The Use and Abuse of Operative Procedures
in Obstetrics,
Dr. N. W. Philpott, Montreal.

4.20 The Management of Hemiplegia,
Dr. J. G. Pincock.

Wednesday, September 21st

Morning

Clinical Session

Noon

12.30 Luncheon.

Speaker — Dr. J. C. Anderson, Saskatoon.

Afternoon

2.00 Business Session

Evening

8.00 Business Session.

Thursday, September 22nd

Morning

Clinical Session

Noon

12.30 Luncheon

Afternoon

2.00 The Common and the Rare in Pediatrics.
Dr. Harry Medovy, Winnipeg.

2.30 Children's Hospital Facilities for Management
of Acutely Disturbed Patients,
Dr. Gordon Stephens, Winnipeg.

3.00 Clinical Relief from Chronic Rightsided
Abdominal Pain. A Call in Report,
Dr. W. A. Bigelow, Brandon.

3.30 Intermission

3.45 The Value of Splanchnic Resection in
Hypertension.
Dr. A. C. Abbott.

4.15 The New and the Old in the Treatment of
Common Skin Diseases,
Dr. A. R. Birt.

Mosquito Lore in New Jersey, U.S.A.

March 23rd to 25th, 1949

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There cannot be a surer way of starting the day wrongly. It should be a cardinal rule to treat sleeping patients as we are advised to treat sleeping dogs—let them lie.

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Another practice which could be profitably abandoned is the prescribing of fomentations. For a few—very few—minutes they are of the proper heat to be useful. After that they become mere sodden cloths incapable of doing harm, to be sure, but equally incapable of doing good. To be useful they must be applied hot and often, for when the heat has left them so has their value. The old fashioned poultice is much better. Moreover in these days of under staffed hospitals the poultice is a particularly desirable replacement of the fomentation for the former, plump and thrifty, holds its heat and permits of long intervals between replacements, while the fomentation, like a skinny spendthrift, gives up its all in a short time and for most of its life is a clammy nuisance.



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or more meetings of committees and Council entail travel and attendance costs of approximately \$2,000 per year, so that if it were not for fees paid for registration of graduates we could not carry on at all.

During the years the College has, at times, been able to salt away in bonds a reserve fund which has from time to time had to be drawn on when annual expenditure exceeded income. It has been, and is, an insurance policy against eventualities and provides capital to meet any threat to the profession in the Province. It would be poor business to use up this money provided by careful finance over all these years to defray annual costs and so place the College where it has no financial backing or reserve. The College, however, at its last meeting passed a resolution seeking from the profession any suggestions for the advantageous use of the income from these bonds, and the Finance Committee were instructed to explore such suggestions and will welcome them. Since we have now been able to replace \$9,000 borrowed during war years from reserves to meet a deficit in income and to pay current expenses our income from the bonds now held amounts to approximately \$1,600 per year and suggestions as to good use to put this bond income to will be welcome.

During the past ten years, in addition to refunding the borrowed \$9,000 above mentioned, the College has paid out the following amounts for the good of the profession:

To the Medical Library, \$7,500.00.

For extramural expenses incurred by special speakers to branch meetings in the Province, \$952.00.

For Gordon Bell Memorial Scholarships, \$6,280.00.

Grant to D.P.H. and W., \$1,000.00.

Red Cross, Overseas parcels, R.C.A.M.C., etc., \$600.00.

Medical Conventions, \$450.00.

At the same time there has been added to the original \$20,000.00. Gordon Bell Memorial Scholarship fund, an additional \$5,000 in bonds.

Your Treasurer and Finance Committee will welcome constructive suggestions for the use of the income from reserve funds. However, we do not feel that capital funds should be used for current expenses during years of financial prosperity, but are held in reserve against less fortunate circumstances.

Harry Williams, Treasurer,
C.P. & S., Manitoba.

From England—The Doctor's Wife Laments!

"This National Health Service of ours is in a glorious muddle at present. I suppose it will sort itself out in time. Just now my husband is having a very trying time. He has never, while under the—County Council, had the accommodation he required for his work, but by persuasion he managed to get a workable scheme, whereby he got good X-rays, and a fairly convenient service for his patients. Now this is all upset, because he has to send patients to inconvenient places for X-ray, where the equipment is not equal to the work it has to do. His work has increased through the G.P.s putting all they can on to the Specialists to ease themselves after the sudden rush of patients with trifling complaints, who would formerly have tied up their own cuts and scratches at home! Paper work and records have doubled. The poor

man comes home tired out every day and besides there is the constant irritation of feeling he is too rushed to be able to give each patient the time he should give. He says, "This isn't Medicine—I might as well be a clerk!" The shortage of beds for T.B. patients has become acute and on top of that his few available beds have been taken by the administrators of the "..... Region" for patients from London! All protests are simply ignored. Before all this he could feel **some** notice was taken when he objected to things. Now clerks deal with everything and protests are filed never to be heard of again. So he is feeling thoroughly frustrated. But I am hoping this is only temporary and that things will straighten out. He just lives for his work, and I am so hoping he will have some years of satisfying work before he has to retire in about eight years time."

(Note: These extracts were originally written for private consumption only).



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Cardiovascular disorders

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enteric coated red tablets

R

Aminophylline $\frac{3}{4}$ gr.
Potassium Iodide $2\frac{1}{2}$ grs.
Phenobarbital Sodium $\frac{1}{4}$ gr.

Phenophylline

enteric coated white tablets

R

Aminophylline $1\frac{1}{2}$ grs.
Phenobarbital $\frac{1}{4}$ gr.

Theobromine Cpd.

compressed white tablets

R

Theobromine 5 grs.
Sodium Bicarbonate 5 grs.
Phenobarbital $\frac{1}{2}$ gr.

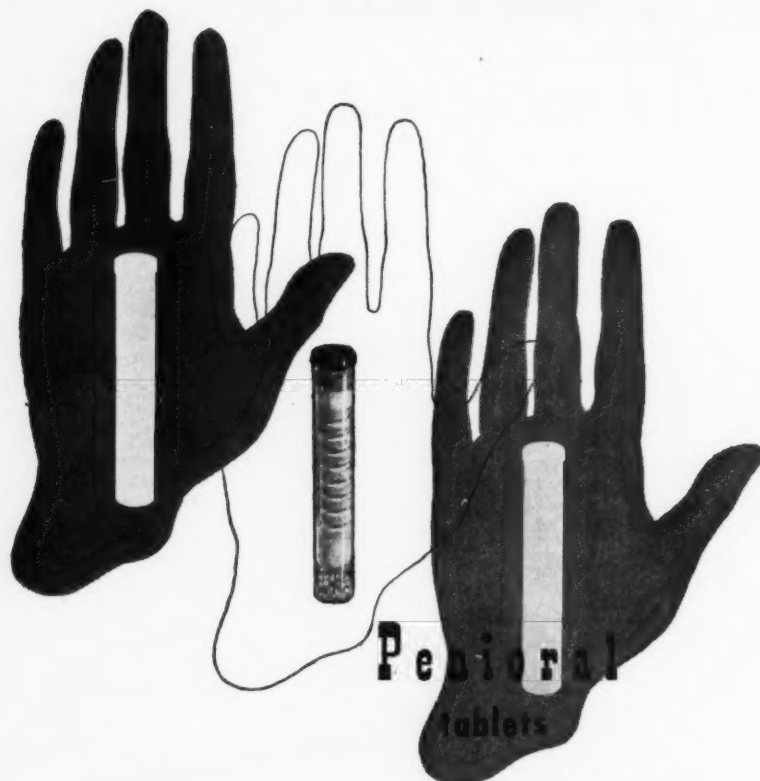
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SOCIAL NEWS

Reported by K. Borthwick-Leslie, M.D.

Dr. and Mrs. J. R. Monteith, Virden, Man., and two sons, sailed July 8th on the Empress of France for an extended visit in Wales and London. While Mrs. Monteith renews friendships with friends and relatives. Dr. John and son John plan on a "busman's holiday" touring hospitals in England, Scotland and Europe—also a spot of golf.

Dr. and Mrs. Leon Pauls and children have taken up residence on Waverly St. Dr. Pauls has completed two years of P.G. work in New York and New Orleans.

Dr. and Mrs. R. H. MacFarlane, with Heather and David, are at present the guests of Mrs. MacFarlane's parents, Mr. and Mrs. Marten, Ash St. Dr. MacFarlane has completed post-graduate work in Boston, Mass. They will reside in Winnipeg.

Dr. and Mrs. D. C. Aikenhead have just returned from what sounds like a perfectly wonderful trip in Great Britain and the Continent. The account is so good that we have decided to print the letter "in toto" next month. They report that Dave, Jr., and wife are very happy in their London life. At present Dave is doing Allergy in St. Mary's Hospital, London.

Dr. (?) and Mrs. George Johnson (nee Doris Blondal), announce the arrival of their son. Congratulations kids.

Save the Children Fund!—Please, all Doctors and Nurses are asked to donate used tunics, uniforms, etcetera, to the Manitoba Committee, Immigration Hall, Water Street.

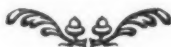
Dr. and Mrs. Jan Hoogstraten announce the birth of their daughter, Jane Stephenson, June 30th. They have just returned from England where Dr. Hoogstraten did extensive post-graduate study. He is now Pathologist at the Children's and Grace Hospitals.

Lutheran Church of the Cross was the scene of the wedding of Margaret Thorsteinson, daughter of Mrs. Thorsteinson and the late G. O. Thorsteinson, to Dr. Glen Preston Gibson, only son of Mr. and Mrs. J. P. Gibson, Los Angeles, California. After their wedding trip to Minneapolis and Brights Grove, Lake Huron, Dr. and Mrs. Gibson will reside in Temiskaming, Quebec.

The marriage vows of Phyllis Ann, daughter of J. M. Ruxton and the late Mrs. Ruxton, and Dr. H. Allan Ohrt, son of Mrs. H. J. Ohrt and the late Mr. Ohrt, were exchanged in Grace United Church, June 11th. Dr. and Mrs. Ohrt will reside in Winnipeg.

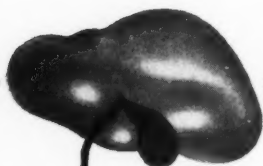
Sincere sympathy to Mrs. Nicholson and the many friends and associates, in the loss of Dr. John Nicholson. He will be sadly missed, especially by the staff and patients in the Veterans' Hospitals, where he has been chief medical consultant since 1919.

Welcome home to Dr. Dorothy Jefferson, who is on furlough from Vellore College, India, where she has been Professor of Physiology since 1933. This is her second furlough and she will be home about a year.



HYDRO-BILEIN TABLETS

TRADE MARK REG



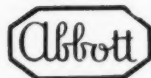
Combining the choleric action of ox bile salts with the hydrocholeretic effect of dehydrocholic acid

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Prolonged administration is well tolerated provided no obstruction of biliary tract is present.

Indicated for: Replacement therapy, Flushing of Biliary Tract, Post-cholecystectomy, X-ray visualization, Laxative effect.

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Dehydrocholic Acid
(Oxidized unconjugated cholic acid) — 2 grs.

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ASSOCIATION PAGE

Reported by M. T. Macfarland, M.D.

Anaesthetists' Fee-For-Service

In response to the questionnaire which was submitted to members of the profession in Greater Winnipeg as to whether or not they agreed that Anaesthetists should be allowed to work on fee-for-service basis, fifty-one replies were received. All save one agreed with the principle and promised to support the efforts of the Anaesthetists to secure the desired results. Several points necessitating clarification were raised in the replies and the desire of the surgeons to have the Anaesthetists as professional confreres was greatly manifested. Some replies were received from individual hospitals, but official reply on behalf of the metropolitan hospitals has not yet been received. When the plan outlined for each individual hospital has been submitted by the Anaesthetic staff of the hospital it will then be possible to circularize members of the professional staff who make use of the services of the Anaesthetists, inviting them to co-operate in order that mutual agreement may be reached. The desire of all is for happy relations between those who give and those who receive these services.

Diagnostic Services—Greater Winnipeg

At the May meeting of the Executive Committee it was reported that there had been a very good response by the profession to the questionnaire which was sent by the Medical Officer of Health, City of Winnipeg, concerning the question of whether or not diagnostic facilities are adequate in the City of Winnipeg at the present time. A member reported that 98% of the replies received indicated that adequate facilities for diagnostic purposes were available at the present time; an extension of facilities under the Health Services Act operated by the City of Winnipeg were undesirable; 90% of those replying were in favor of an extension of the Manitoba Medical Service coverage for those not already included and for those unable to pay the premium involved. The results were published in the local press under the captions "Doctors Oppose City Health Centre; City Diagnostic Centre Not Needed; and Doctors Hit Diagnostic Service Plan" and the results were outlined. One prominent city paper said that as a result of the questionnaire it would be interesting to see what plan was evolved to fortify the Manitoba Medical Service.

Cancer Diagnostic Clinics

With approval of Executive Committee of this Association, the Medical Advisory Board of the Cancer Relief and Research Institute undertook

a study of the method in which Cancer Diagnostic Clinics should be set up at the Winnipeg General Hospital and St. Boniface Hospital for use only of those patients from Rural Manitoba who were referred by their local doctor with a suspicion of Cancer. The plan visualized a complete work-up of the case at the hospital, the patient to be seen by a consultant in the various specialty branches before being referred to the definitive clinic where decision as to final diagnosis and outline of treatment would be made. The plan outlined was discussed on various levels with the staff of each hospital where several discussions concerning the scope of the clinics, the weakness of the proposed plan, and a satisfactory alternative plan were considered. The Executive Committee of the Association reconsidered its position and appointed a committee of three members in addition to those who are representatives on the Cancer Relief and Research Institute to formulate recommendations. A meeting of representatives of the latter group, Medical Advisory Board of the Institute and the staffs of the two hospitals met on May 26th, and the decision was taken that the whole staff of each hospital should be appraised of the proposal, that the representatives of the Association and the Institute should meet again, and that the Institute should provide alternative plans. At a meeting of the Board of the Institute which was held on June 3rd the original plan received from the Medical Advisory Board was formally referred to the Board of the Winnipeg General and St. Boniface Hospitals for consideration. Inasmuch as principles laid down for the conduct of Cancer Diagnostic Clinics may be extended to other forms of medical care for some time to come it is important that each and every member of the Association be informed concerning the Cancer problem by perusal of the report of the Special Select Committee in 1947, the last Annual Report of the Cancer Relief and Research Institute and articles such as those which appeared in the June issue of the Review. As a result of studies, some definite policy should be enunciated at the time of the Annual Meeting in September.

Fee Committee

A first meeting of the Fee Committee was held on May 20th to consider matters in connection with the interpretation of Electrocardiograms, and fees for Neurological procedures. The deliberations of this committee will, upon approval, be sent to the Manitoba Medical Service with recommendation that the rulings be included in the Schedule of the latter organization.

Membership

The membership of the Association at the present time stands at 641 for the year 1949. Every effort is made to include all and notices are sent alike to members of many years standing as also to those who have recently become enrolled and licensed to practise in the province. Every duly qualified medical practitioner residing in the province is eligible for membership, the right to participate in Group Insurance, Manitoba Medical Service, also to attend and assist in the Annual Meeting of the Association. So, over the top membership figures for 1949!

Fee Taxing Committee—Workmen's Compensation Board

When negotiations concerning fees were finalized with the Workmen's Compensation Board it was agreed that a Fee Taxing Committee should be set up by the Association. Three members of a five-man panel have met monthly with the Medical Officer, W.C.B., to adjudicate on accounts, and reports are that the deliberations have been mutually satisfactory. The College of Physicians and Surgeons has agreed to accept the responsibility for the financial remuneration of this committee and for the purpose has named members of the Taxing Committee to carry out the function of adjudicating accounts until the Annual Meeting of the College in October when a report will be presented to the Council and later to the Executive of the Association.

Brandon and District Medical Association

A meeting of the Brandon and District Medical Association was held in the Brandon Flying Club at 3 p.m., Standard Time, on the afternoon of Wednesday, June 1st, 1949.

Those present were: Doctors E. J. Skafel, President; J. B. Baker, Secretary-Treasurer; K. Anstreicher, E. S. Bolton, M. E. Bristow, J. S. Brown, S. L. Carey, R. P. Cromarty, G. B. Elliott, H. S. Evans, J. A. Findlay, F. Fjeldsted, J. G. Fyfe, J. E. Garson, D. L. Johnson, G. Lambertsen, L. J. LeVann, J. M. Matheson, H. O. McDiarmid, R. F. M. Myers, W. S. Peters, A. H. Povah, F. J. E. Purdie, H. S. Sharpe, W. H. Thorleifson, ? ? Winchell, Brandon; A. M. Clare and W. A. Howden, Neepawa; M. Duggan and A. L. Paine, Ninette; Leon Rubin, Rivers; W. F. Abbott, J. D. Adamson, E. M. Gee and M. T. Macfarland, Winnipeg.

The programme consisted of a talk by Dr. J. D. Adamson of Winnipeg on "Poliomyelitis," in relation to the Chesterfield Inlet epidemic, and Dr. W. F. Abbott spoke on "Functional Uterine Bleeding."

At the brief business session which preceded dinner, the following officers were elected for the ensuing year:

Honorary President—Dr. H. O. McDiarmid, Brandon.

President—Dr. A. M. Clare, Neepawa.

Vice-President—Dr. J. A. Findlay, Brandon.

Secretary-Treasurer—Dr. F. J. E. Purdie, Brandon.

Executive Committee—Dr. M. E. Bristow, Brandon; Dr. W. A. Howden, Neepawa; Dr. A. H. Povah, Brandon.

The representative to the Manitoba Medical Association Executive is Dr. R. F. Myers, Brandon, and nomination to the Board of Trustees, Manitoba Medical Service, Dr. F. Fjeldsted.

The dinner was presided over by the new President, Dr. A. M. Clare, and was followed by community singing and brief, witty remarks by the President and Dr. J. D. Adamson.

Special activities were prepared for the ladies.

Southern District Medical Association

The Annual Meeting was held at the Altona Hospital at 2 p.m., May 26th, 1949. There were fifteen doctors present.

Guest speakers were Doctors C. H. A. Walton, who spoke on "Bronchial Asthma," and F. R. Tucker, who spoke on "Fractures, Sprains and Dislocations of the Ankle Joint."

The following list of officers for the forthcoming year were elected:

President—Dr. A. P. Warkentin, Winkler.

Vice-President—Dr. E. K. Cunningham, Carman.

Secretary—Dr. J. P. Boeskie, Gretna.

Representative to M.M.A.—Dr. S. S. Toni, Altona.

Representative to Nominating Com., M.M.A.—Dr. A. F. Menzies, Morden.

Representative to Gen. Practitioners' Association—Dr. W. Colert, Morden.

Dr. MacMaster, Medical Director of the Manitoba Medical Service, led a discussion of the proposed extension of the M.M.S. to rural Manitoba. Lengthy discussion followed. It was moved, seconded and carried.

"THAT the Southern District Medical Society commend the M.M.S. in their intention to expand to rural Manitoba."

A discussion of the proposal by the Manitoba Cancer Relief and Research Institute to set up free Cancer Diagnostic Clinics at the Winnipeg General and St. Boniface Hospitals for rural practitioners ensued. It was moved, seconded and carried.

"THAT the Southern District Medical Society inform the M.M.A. that we are not in favor of the proposal of the Manitoba Cancer Relief and Research Institute to set up Cancer Diagnostic Clinics. The Society thinks they would be impractical and would purport to do what is, for technical reasons, impossible at the present time."

Lunch was served by the Altona Ladies' Aid. A vote of thanks to visitors was moved by Dr. Menzies and the meeting then adjourned.

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COLLEGE OF PHYSICIANS AND SURGEONS OF MANITOBA

M. T. Macfarland, M.D., Registrar

(Continued from July Issue)

February 14th, 1949—Registration Committee**Enabling Certificate Deferred:**

Franklin Norwood Crider, B.S., Washington Missionary College, 1943; M.D., College of Medical Evangelists, 1945.

Temporary Licences Granted:

John Davidson Bailey, M.D., University of Toronto, 1947; L.M.C.C., 1947. John Patrick Macrae Bensted, M.R.C.S., England, 1945; L.R.C.P., London, 1945; M.B., Ch.B., M.A., Cambridge University, 1948.

Registration Granted:

Victor Sadler Hawkes, M.R.C.S., England, 1944; L.R.C.P., London, 1944. John Arthur Hilde, M.D., University of Toronto, 1940; L.M.C.C., 1940; M.R.C.P., London, 1948. Joseph Abraham Ludwig, M.R.C.S., England, 1948; L.R.C.P., London, 1948.

The Registrar explained that a few doctors employed by the Dominion and Provincial Governments were not renewing their temporary licences when they terminated, and that at least one of them used his temporary licence to facilitate his registration in another province. The Committee were of the opinion that the Certificate of Licence should state clearly the nature and extent of the licence, and instructed the Registrar to mark each licence clearly with details and date of expiry.

The Registrar outlined the case of a physician who arrived from England in December, 1947, and was employed by the Sanatorium Board until September, 1948. He never obtained a Basic Sciences Certificate of Credit, so never registered. He is now leaving the Province. The Registrar was instructed to retain Ten Dollars (\$10.00), the equivalent of Temporary Licence, from this physician, since he practised in the Province for nine months.

March 23rd, 1949—Registration Committee

Extension of Certificate of Licence was refused to two employees of the Dominion Government, and one employee of the Manitoba Government.

Temporary Licences Granted:

Alfred John Nelson, M.B., Ch.B., University of Glasgow, 1945; D.P.H., R.C.P.S., England, 1948. Gerard George Lippert, B.A., McGill University, 1937; M.D., C.M., McGill University, 1942; L.M.C.C., 1943.

Interim Enabling Certificate Granted:

Alan Cresswell Parkin, B.A. (Hons.), University of Manitoba, 1945. In final year Faculty of Medicine, University of Toronto.

Enabling Certificate Granted:

Dewane Adrian Brueske, M.D., College of Medical Evangelists, 1947; D.N.B., 1948.

An application for employment as a Serologist at Children's Hospital, Winnipeg, was presented from a graduate in Medicine from a Hungarian medical school, at present otherwise employed in Great Britain. Letters of recommendation from the interviewing officers were also considered. It was the feeling of the meeting that while this party might be employed for specific duties without reference to the licensing body, the conditions for licensing which she would be expected to meet in the event that she terminated her employment with the Children's Hospital, should be well known to her in advance. A letter from the Children's Hospital setting out some of the conditions will be addressed to the Registrar.

The members of Committee were acquainted with the articles concerning licensing which have recently been published in Maclean's Magazine (February 1, 1949), and the Winnipeg Free Press (March 21, 1949), together with replies by Dr. Blair in the House of Commons (Hansard, March 4, 1949), and the Registrars of two Western provinces.

May 2nd, 1949—Registration Committee

The matter of Temporary Licences of two employees of the Federal Government was postponed pending decision of Council on temporary licensing.

The Registrar presented the letter dated March 23, 1949, received from Children's Hospital, outlining the conditions under which the Hungarian doctor would be brought to Canada to work for Children's Hospital, and his reply of March 26, 1949. He stated that he understood that application had been made for the doctor's entry to Canada, but that there was some question whether it could be arranged under the category of serologist.

Interim Enabling Certificate Confirmed:

Helen Louise Martin, B.A., University of Manitoba, 1944. In final year Faculty of Medicine, Queen's University.

Enabling Certificate Confirmed:

David Yao Pei Lin, B.S., Saint John's University, Shanghai, China, 1943; M.D., West China Union University, 1946.

Enabling Certificate Deferred:

John Silny, M.D., Masaryk University, Brno, Czechoslovakia; M.D., C.M., McGill University, 1948.

Enabling Certificates Granted:

Ching-Feng Hsu, B.S., Yenching University, 1937; M.D., Peiping Union Medical College, 1941.

Roy R. Bowes, M.D., College of Medical Evangelists, 1943; D.N.B., 1944.

Temporary Licence Granted:

Ernest Mastromatteo, M.D., University of Toronto, 1947; L.M.C.C., 1947.

Registration Granted:

John Muir Brown, M.B., Ch.B., University of Glasgow, 1937; C.P.H., University of London, 1946; D.P.H., University of London, 1946. Clifford Bruce Colquette, M.D., University of Toronto, 1941; L.M.C.C., 1941. Ian Whitelaw Monie, M.B., Ch.B., University of Glasgow, 1940. Frederick Gordon Tucker, M.R.C.S., England, 1939; L.R.C.P., London, 1939; M.B., B.S., University of London, 1939.

A brief report was given on five pending applications.

May 3rd, 1949—Discipline Committee

Members present: Drs. A. A. Alford (Chairman), H. Bruce Chown, J. Prendergast, C. W. Wiebe, C. B. Stewart, President, ex-officio, and M. T. Macfarland, Registrar.

The following resolution was passed at the Council meeting on October 18, 1948, "That the Discipline Committee be a committee to study the changes in our disciplinary proceedings and report to the Council in May."

The Chairman explained that the meeting was called to consider the powers given Council under the Medical Act. Erasure is provided for major offences, for example after a person has been convicted of a criminal offence, but there is no provision for dealing with minor offences. He believed that under a system of state medicine the shortcomings would have been corrected some time ago, but deprecated the idea of professional men becoming detectives or informers. Trivial complaints or abuses would have to be prevented.

The President stated that the College had been criticized for adopting a restrictive attitude with respect to discipline. No action is taken until a doctor has been proven guilty of a major offence. He was not prepared to say whether the Medical Act was at fault or whether the interpretation given was too narrow. He thought that some revision should be incorporated into the Medical Act, or the present Act interpreted more widely than in the past, with the Council exercising powers of discipline short of erasure.

The Registrar read from the October, 1947, bulletin issued by the College of Physicians and Surgeons of Alberta, outlining specific sections of the Alberta Medical Act, and the modifications outlined which appeared in the British Medical Journal, April 26, 1947, and have more recently been studied by the Province of Saskatchewan. He stated that the medical acts of the western provinces, Ontario and Quebec, contain the power of suspension of a member during an investigation. The definition of "unprofessional conduct" in the

Saskatchewan Act was also read for the benefit of the members.

Following discussion which was joined by all members of the Committee, it was decided that the Registrar contact the Solicitor, to secure legal opinion of the powers which are vested under the Medical Act, and to refer the whole matter to Council for discussion.

Re Dr.

At the time of the Annual Meeting, October, 1948, a resolution of Council asked that a report concerning Dr. be brought in by the Discipline Committee. The Registrar outlined information which had been obtained. The President remarked that no verbal or written communication had been sent from this College to the doctor concerned, and suggested that the receipt of a letter from this body might have a beneficial effect.

The Registrar was instructed to communicate with Doctor and to obtain a progress report from the hospital concerned.

Re Dr.

The Registrar read a letter from the College of Physicians and Surgeons of, dated April 23, 1946, concerning the suspension of Dr. for the period of one year ending April 20, 1947. The suspension was to continue until such date as the levied fine of \$500.00 had been paid. The doctor's name is listed in the latest Medical Register, but no official word has been received from the College of Physicians and Surgeons. Manitoba Council ordered his name erased from the Register in May, 1946. The question arises whether the name should be replaced on the same date on which his reinstatement became effective, or whether this Council takes no action until application is made. The Registrar was instructed to defer action until Dr. applies for reinstatement.

Re Dr.

The Registrar outlined communications written verbal and personal from and to the Workmen's Compensation Board, complainant, and Dr., extending over a period of approximately four months. Due to the lack of reports from the doctor the W.C.B. were unable to finalize cases or to make payment to some workmen during the period of their disabilities. The Workmen's Compensation Board is anxious to have some assurance for the future in matters of this kind. The Board has the power to notify a doctor, for cause, that he will not be allowed to do further work for the Board, but has always maintained that the initiative should be taken by the profession. There was general agreement that matters of this nature affecting one individual, but reflecting upon the whole profession, should be dealt with by Council, rather than by the Workmen's Compensation Board. Withdrawal of licence would have a much

more salutary effect than any limited action which the W.C.B. might take, and that publication of such action in the Review would bring it to the attention of the profession. It was agreed that the action of the Registrar be approved and that the correspondence be submitted to the Council in May.

"THAT the Registrar notify Dr. that his case has been considered by the Discipline Committee and that similar complaints in the future will render him liable to disciplinary action, and that a copy of letter be addressed to Chief Medical Officer, Workmen's Compensation Board." Carried.

The Registrar presented a letter dated April 24th, addressed by Dr. to the Public Relations Committee, M.M.A., enclosing newspaper clippings from a provincial paper. A similar complaint to the College in 1945 was considered by committee but no action was considered necessary since the doctor's name did not appear in the advertisement. The matter was not considered by Council at that time. In view of the nature of the statements in the advertisements, this matter was referred to Council.

Irregular Practitioners

The Registrar cited instances of complaints made by the public concerning practitioners, other than medical, and asked to what extent he should bring these matters to the attention of the Attorney-General's Department. It was suggested that legal opinion be sought in connection with this problem.

Council Meeting

Winnipeg, Man., May 18th, 1949

A special meeting of the Council of the College of Physicians and Surgeons of Manitoba was held Wednesday, May 18th, 1948, at 2 o'clock p.m., in the Medical College, Winnipeg.

The President, Dr. C. B. Stewart, called the meeting to order.

The business of the meeting was as follows:

1. Roll Call

The following members were present: Doctors C. B. Stewart, President; Edward Johnson, Vice-President; T. H. Williams, Treasurer; M. T. Macfarland, Registrar; A. A. Alford, B. D. Best, C. S. Crawford, J. M. Lederman, I. Pearlman, J. S. Poole, F. K. Purdie, J. Prendergast, F. A. Rybak, D. L. Scott, W. F. Stevenson and C. W. Wiebe.

2. Minutes

The Registrar announced that each member of Council had received a copy of the minutes of the Council meeting held October 20, 1948.

Motion: "THAT the minutes of the Council Meeting held October 20th, 1948, be accepted as having been read." Carried.

Business Arising From the Minutes of Council Meeting Held October 20, 1948

A. Reciprocal Relations With Other Medical Boards in Australia

The Registrar reported that he had written to the medical boards in Australia, but to-date had received no reply.

B. Medical Student Registration in University of Manitoba Calendar

The Registrar reported that he had written to the Registrar, University of Manitoba, outlining the suggested changes in the Calendar of the Medical Faculty. The 1949-1950 Calendar is not yet available.

C. Complaint Re Duffy's Taxi

The Registrar reported that he had written to Duffy's Taxi, and had received word that the business was under new management. They were fully aware of the previous situation, and stated that they would make every effort to avoid repetition.

D. Register—Printing Annual Reports—Revision of By-laws

The Registrar requested whether the Council wished to set a deadline for information concerning the Register. He stated that he had hoped to receive the American Medical Directory before the Manitoba Register was published, but that he had information that it would not be available until the Fall.

Motion: "THAT the deadline for receiving information for the Manitoba Register be set at December 31st, 1949." Carried.

The Registrar inquired whether the Council wished to have the committee and council minutes printed in the Review. He stated that previously the Registrar's Report had been printed and sent out to each member of the College, and that the College has to pay for the setting up of the minutes in any event.

Motion: "THAT the Registrar be instructed to continue to have the minutes printed in the Manitoba Medical Review." Carried.

The Registrar reported that there were only 2 or 3 copies of the By-laws available, and that the new Council should be supplied with copies. He stated that the present copies were not complete and inquired whether the By-laws should be brought up-to-date, and reprinted.

Motion: "THAT the President, Dr. C. B. Stewart; Treasurer, Dr. T. H. Williams, and Registrar, Dr. M. T. Macfarland, be a committee to consolidate the By-laws, Rules and Regulations, and arrange for reprinting of same." Carried.

3. Reports of Officers and Their Consideration

Not applicable at this meeting.

4. Reports of Standing Committees and Their Consideration

A. Registration Committee

The Registrar reported that there had been four meetings of the Registration Committee held since

the October Council meeting, and that Council had been supplied with mimeographed copies of the minutes of each meeting.

Motion: "THAT the minutes of the Registration Committee meetings be accepted as having been read." Carried.

The Registrar stated that the Registration Committee continues to have problems in connection with temporary licencing. He stated that employees of the Dominion Government employed at Deer Lodge Hospital were granted temporary licences for the period of one year, but that many of them did not feel that they should have to take out permanent registration at the end of the year because they were still in training.

The Registrar read correspondence with the Superintendent of Deer Lodge Hospital, in which the Superintendent states that Junior Interne, Senior Interne, Assistant Resident and Resident at Deer Lodge Hospital are not employees of the Civil Service Commission, but are with the Department of Veterans Affairs for training which will qualify them for their certification or fellowship examinations held by the Royal College. The Registrar replied that Junior and Senior Internes were considered as "graduate internes" (within the meaning of the 1947 amendment to Medical Act) and would be eligible for temporary licensing as internes, but that Assistant Residents and Residents were classified by the College as full time employees of the Federal Government, and eligible for temporary licensing for the period of one year, after which they are expected to become fully registered.

The Registrar also read correspondence with the Civil Service Commission in which the Secretary states that all employees of the Federal Government must be registered in one province in Canada, and must keep good standing in that province by paying the annual fee. "He is considered to be qualified for employment in a D.V.A. hospital located in any Province of the Dominion so long as he maintains a licence to practise in any one province."

The Registrar read correspondence with the CMO, Prairie Command, and the Director General of Medical Services, Ottawa, stating that it would be most advisable for Medical Officers to apply for temporary registration, but that any decision must be at the discretion of the Officer concerned.

The Registrar stated that Ontario was having much the same trouble, and read correspondence with the College of Physicians and Surgeons of Ontario. Ontario does not wish to have regulations which will keep those wishing to do post-graduate work away from this Province, and have passed a resolution which would grant a special licence for a specified period during which the doctor is engaged in post-graduate studies, providing that

the jurisdiction from which these proposed licensees come grant similar privileges to graduates of Ontario.

Dr. Best stated that this presents quite a problem to the Registration Committee throughout the year. He stated that there were doctors working at Winnipeg Clinic preparing to write the examinations of the Royal College, and who did not earn any more than Assistant Residents and Residents at Deer Lodge Hospital, and were required to take out permanent registration. He asked for a ruling from the Council that the Registration Committee might follow.

Dr. Williams suggested that the provision re temporary licence should be granted to those employed by institutions which are accredited by the Royal College of Physicians and Surgeons of Canada to do training of sufficient grade.

The Registrar pointed out that of the 5-year training period at Deer Lodge Hospital, physicians could have 3 years at the lower rate. The junior interne is charged \$5.00 for his temporary licence, the second year he could pay an additional \$5.00 as senior interne and no additional capital charge during the third year when he is an assistant resident or resident, and classified as a full time employee of the Federal Government. His licence would have to be kept in good standing each year by the payment of the annual fee. The total amount of money for the 3 years would be \$10.00 capital outlay plus \$6.00 annual fee. At the end of his third year he would be expected to register permanently.

The Registration Committee has been cancelling Certificates of Licence at the end of the first year of employment with the Dominion or Manitoba Governments, and inquired whether the Council was in agreement with this action.

Motion: "THAT the Registration Committee carry on as at present and if, after study, changes are considered advisable, a resolution to that effect should be presented to Council." Carried.

Dr. Williams said that Dr. _____ came to Deer Lodge Hospital from England. He took out a temporary licence. He is a straight-forward type of chap. He was given to understand that he was not obliged to register. When his first year of employment was completed he should have made representations in connection with the balance of his time at Deer Lodge, approximately 16 months. He has been receiving a very small salary, is a married man, and is going to the U.S.A. to continue his training at a very small remuneration. He felt very badly to think that he was leaving under a cloud, and sent the additional \$90.00. Dr. Williams felt that some of the money should be refunded to Dr. _____. Dr. Best stated that the Registration Committee would take it under advisement at the next meeting.

The Registrar explained that Dr. H. Bruce Chown, a member of the Registration Committee, was away from the province for a number of months, and requested an appointment be made for another member for the time during which Dr. Chown will be away.

Motion: "THAT Dr. I. Pearlman be appointed a member of the Registration Committee to replace Dr. H. Bruce Chown for the time which Dr. Chown will be absent from the city." Carried.

B. Executive Committee

The Registrar reported that there had been one meeting of the Executive Committee held January 13, 1949, and that Council had been supplied with mimeographed copies of the minutes.

Motion: "THAT the minutes of the Executive Committee meeting held January 13, 1949, be accepted as having been read." Carried.

Business Arising From Minutes of Executive Committee Meeting Held January 13, 1949

(a) Amendment to Medical Act

Dr. Poole reported that the amendment went through very easily when it was brought up in the first instance. Under second reading it was suggested that there should be a limit on the amount of fee that should be allowed to members of Council for meetings. At the Law Amendments Committee there was no mention made of any limitation.

(b) C.P. & S. Taking Over Payment of Members of the W.C.B. Fee Taxing Committee

Dr. Stewart explained that the Fee Taxing Committee is a committee of the Manitoba Medical Association which sits in and reviews certain W.C.B. fees. The committee has been functioning for the last 6 months, and at the meeting of the Executive Committee it was suggested that the C.P. & S. might take over the payment of this committee.

Dr. Best stated that the matter was discussed by the Liaison Committee of the C.P. & S. and M.M.A., who considered that the committee was a very necessary one. He had suggested that the C.P. & S. might take over the payment of the committee if it could be one and the same as the Taxing Committee of the C.P. & S., but that the matter would have to be referred to Council.

The Registrar stated that the tentative fee of \$5.00 a meeting for 3 members meeting once monthly had been set. The matter came up during the negotiations of the fee schedule of the W.C.B., and the feeling was that the members of the fee taxing committee should be paid by the profession rather than by the W.C.B. The Negotiating Committee felt that if the Association appointed a committee to sit with the Chief Medical Officer to settle differences and adjudicate where fees could not be set in a schedule, it would make for better relations between the Board and the Profession.

The Fee Taxing Committee was set up for 6 months when it will have to be considered by the Association again. The W.C.B. accepts the findings of this committee.

After considerable discussion the Council felt that since 2 of the 3 members of the Taxing Committee of the C.P. & S. were from rural Manitoba, and since rural members sometimes found it inconvenient to come to Winnipeg on short notice, that 2 alternate city members should be appointed.

Motion: "THAT the Taxing Committee of the C.P. & S. take over the fee taxing duties, which have previously been the function of a committee of the M.M.A. in respect of the W.C.B., for the balance of the year ending September 30th, and that 2 alternatives be appointed so that there will always be 3 members available for the meetings." Carried.

Motion: "THAT Dr. D. L. Scott and Dr. I. Pearlman be appointed alternate members of the Taxing Committee." Carried.

(c) Appointment of Committee to Study C.P. & S. Funds

The Treasurer suggested that a committee should be appointed to consider ways in which the earnings of the invested capital of the College might be employed for the benefit of the profession.

Motion: "THAT the question of means of employing the income from invested C.P. & S. funds be passed to the Finance Committee for study and report to the October meeting of Council." Carried.

(d) Appointment of Member to Liaison Committee to Replace Dr. W. S. Peters

The Registrar reported that at the October Council meeting no member was appointed to the Liaison Committee to replace Dr. W. S. Peters.

Motion: "THAT Dr. Edward Johnson be appointed to the Liaison Committee." Carried

(e) Appointment of Committee to Study Medical Act

Dr. Macfarland stated that one of the points discussed at the meeting of the Liaison Committee was a revised Medical Act. When asked what changes were advisable, he stated that the electoral districts dated back to 1923, that there should be some reconsideration concerning homeopathic physicians since there are no practitioners of homeopathy in the Province at the present time, and other changes which have been mentioned.

Dr. Poole stated that he thought the representation on the Council was too large, especially from Winnipeg.

Dr. Williams stated that it was against the principle of representation by population, and that more than half the doctors in Winnipeg reside in South Winnipeg.

Dr. Best thought Dr. R. W. Richardson's idea was to study and record new suggestions and minor changes which might be incorporated in the Medical Act, so that we would be able to present the Act as it should be at some favourable time in the future.

After lengthy discussion the Council agreed that since a new Council would be elected for the October meeting, that the matter be passed on and that due notice be taken of it.

(f) Manitoba Association of Registered Nurses

Dr. Macfarland presented the resolution approved by representatives of the Canadian Nurses' Association and the Canadian Hospital Council at a joint conference held in June, 1941, and stated that the opinion of the Executive Committee was that all of the procedures outlined in the motion might be performed by graduate registered nurses.

Motion: "THAT this Council confirms the action of the Executive Committee in approving the resolution of the Canadian Nurses' Association and the Canadian Hospital Council." Carried.

(g) Reciprocity With Michigan State Board of Registration in Medicine

Dr. Macfarland presented the letter dated November 24, 1948, from the Michigan State Board of Registration in Medicine, advising that the citizenship requirement has been deleted from the Rules and Regulations of all State Boards and Commissions, and inquiring:

1. Whether this Council (Man.), would consider negotiating an agreement whereby the respective boards would establish a reciprocal endorsement licensure of the licentiates of the respective boards; or

2. Whether this Council (Man.), would accept to examination and licensure, applicants who are graduates of the University of Michigan Medical School, Ann Arbor, and the College of Medicine, Wayne University, Detroit, both Class A medical schools, if the Michigan Board grants like privileges to examinations and licensure to graduates of Canadian Class A medical schools.

Dr. Macfarland explained that he had written to the Michigan State Board advising that this Council already accepts graduates from Class A American Schools to write the examinations of the Medical Council of Canada, provided they present the necessary documents, including Certificate of Credit, Basic Sciences Act.

Motion: "THAT this Council accept to examination and licensure, applicants who are graduates of the University of Michigan Medical School, Ann Arbor, and the College of Medicine, Wayne University, Detroit, both Class A medical schools, if the Michigan Board grants like privileges to examination and licensure to graduates of Canadian Class A Medical Schools." Carried.

(h) Foreign Graduates

Dr. Stewart stated that foreign graduates present the greatest problem for Council and the Registration Committee. There is no ruling in the Medical Act or By-laws whereby these physicians may become registered, and to overcome this the Registration Committee presented the following resolution to the Executive Committee, which in turn passed it to Council for approval:

"Whereas the Registration Committee of this Council is being confronted with numerous applications from those not entitled to registration under the Medical Act, 1940, Secs. 31, 32, 33, their subsections, and by-laws:

"THEREFORE the Registration Committee recommends to Council that in lieu of assessment on the basis of documentary evidence alone, the applicant for an Enabling Certificate to write the examinations of the Medical Council of Canada be required to produce evidence of clinical qualification as follows:

1. A Certificate of Credit under the Basic Sciences Act.

2. A Certificate that he has passed the examinations of the fourth year in the Faculty of Medicine, University of Manitoba.

3. A Certificate that he has satisfactorily completed a 12-month internship in an approved hospital."

The Registrar advised that there are at least a dozen medical doctors in the Province at the present time being employed by hospitals and the Provincial Government, who are not registered and who, according to present regulations, cannot be registered. He stated the case of a doctor who is employed as an interne at St. Boniface Hospital who presents very good credentials which can be verified, who has a Certificate of Credit under the Basic Sciences Act, and who by the fall will have completed 2 years internship. He has not completed the fourth year examinations. Foreign graduates are being employed at St. Joseph's Hospital, St. Boniface Hospital, Brandon Mental Hospital, Ninette Sanitorium, Clearwater Hospital at The Pas, Portage Home for Mental Defectives, and others who apparently are not employed medically. He cited the case of a doctor from Holland who had obtained a Basic Sciences Certificate of Credit, and who had been advised to write the examinations of the fourth year and spend a year's internship, on the assumption that the resolution of the Registration Committee would be passed by Council. In the meantime he found he could obtain an Enabling Certificate from Saskatchewan by doing a year's internship, so he went to Saskatchewan. Dr. Macfarland stated that he had lists from B.C., Saskatchewan and Ontario of foreign graduates who had been granted enabling certificates, and who had been refused enabling

certificates. He inquired which hospitals would be considered as approved for internship.

Dr. Best explained that the attitude of the Registration Committee has been that these doctors should be required to have the same qualifications as Canadians or Manitoba graduates. If their credentials cannot be verified they would have to write the examinations of the fourth year, but that all should have a year's internship in a Canadian hospital to become acquainted with the language and Canadian medicine.

Motion: "THAT the recommendation of the Registration and Executive Committees be approved." Carried.

Dr. Prendergast suggested that each applicant who is approved to write the examinations of the fourth year by the College, should have a letter from the Registrar to the Dean, advising him that the College requires the physician to write the examinations, in order that the Dean will know who the applicant is.

(i) Registrars' Meeting

The Registrar explained that he had received word from Dr. G. G. Ferguson, Registrar, C.P. & S., Saskatchewan, that the meeting of the Registrars would be held on Thursday, June 16, 1949, in the Board Room, the College Building, University of Saskatchewan and that the President of each Council was also invited to attend.

Motion: "THAT the President, Dr. C. B. Stewart, and the Registrar, Dr. M. T. Macfarland, attend the Registrars' Meeting, as representatives of this Council, and that the Treasurer be authorized to pay the expenses incurred." Carried.

The Registrar presented the tentative agenda for the meeting, and resolution which he intended to bring before the meeting concerning doctors em-

ployed by the Dominion Government, for discussion by the Registrars.

Dr. Best requested that the Registrar compare the regulations concerning foreign graduates with the other Registrars, for the information of the Registration Committee.

(j) Appointment of Member to Replace Dr. C. B. Stewart, President, on the Discipline Committee

The Registrar pointed out that Dr. Stewart had been appointed a member of the Discipline Committee at the October meeting of Council, and that as President he was ex officio a member of all committees.

Motion: "THAT Dr. J. M. Lederman be appointed a member of the Discipline Committee to replace Dr. C. B. Stewart." Carried.

(k) Increase in Monthly Amount Paid to Manitoba Medical Association

The Registrar explained that at the meeting of the Executive Committee it was pointed out that rent, business tax, and salaries had been raised, and that the Committee had passed a motion raising the monthly amount paid to the M.M.A. from \$175.00 to \$200.00, retroactive to January 1, 1949.

Motion: "THAT the motion of the Executive Committee raising the monthly amount paid to the Manitoba Medical Association from \$175.00 to \$200.00, retroactive to January 1, 1949, be approved." Carried.

C. Discipline Committee

Dr. Alford presented the minutes of the Discipline Committee meeting held October 20th, 1948, and read the minutes of the Discipline Committee meeting held May 3rd, 1949.

Motion: "THAT the report of the Discipline Committee be adopted." Carried.

(Continued in Next Issue)

Post-Graduate Course in Urology

The first Post-graduate Course in Urology to be sponsored by the North Central Section of the American Urological Association will be held at the Hotel Sherman, Chicago, Illinois, December 5-9, inclusive, 1949.

All members of the North Central Section are invited to attend. In addition, the Course will be open to residents in Urology and to physicians who are interested in a short post-graduate course in Urology.

The attendance will of necessity be limited and early reservations are requested.

The tuition fee will be \$50.00.

The Hotel Sherman has set aside ample accommodations for out-of-town urologists. There is a garage in this hotel.

Address applications and requests for information to Dr. William J. Baker, 7 W. Madison Street, Chicago 2, Illinois.

Medical Exhibitors Association of Canada

Word has recently been received of the formation of Association of Commercial firms who exhibit at medical conventions. The group is affiliated with the Medical Exhibitors' Association of U.S.A. Its aims and objects are "to assist in every way possible by mutual collaboration, with medical, dental, hospital and allied associations, in making their conventions a greater success insofar as the commercial exhibit aspect is concerned." A list of names of firms presently members of the Association was attached and a "Summary of Recommendations" has been compiled, which outlines in detail the aims and methods of operation planned by the new association. A very important part of any Association meeting, it is anticipated that relations between this Association with commercial firms will continue at the high level which is characterized as in the past.

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Department of Health and Public Welfare
Comparisons Communicable Diseases — Manitoba (Whites and Indians)

DISEASES	1949		1948		Total	
	May 22 to June 18, '49	Apr. 24 to May 21, '49	May 16 to June 12, '48	April 18 to May 15, '48	Jan. 2 to June 18, '49	Dec. 28, '47 to June 12, '48
Anterior Poliomyelitis	2	5	0	0	9	3
Chickenpox	128	114	333	247	772	1541
Diphtheria	0	1	1	1	12	9
Diphtheria Carriers	0	0	1	0	2	1
Dysentery—Amoebic	0	0	0	0	0	0
Dysentery—Bacillary	0	0	3	0	4	3
Erysipelas	1	2	4	4	15	18
Encephalitis	0	0	1	0	0	1
Influenza	28	42	4	36	143	114
Measles	1153	704	157	61	4382	330
Measles—German	33	43	1	7	85	31
Meningococcal Meningitis	3	3	0	1	14	6
Mumps	91	96	214	220	822	1167
Ophthalmia Neonatorum	0	0	0	0	0	0
Pneumonia—Lobar	12	22	15	20	114	102
Puerperal Fever	1	0	0	0	2	1
Scarlet Fever	9	7	28	24	55	126
Septic Sore Throat	6	3	2	1	22	12
Smallpox	0	0	0	0	0	0
Tetanus	0	1	0	0	1	1
Trachoma	0	0	0	0	0	0
Tuberculosis	92	91	258	116	360	794
Typhoid Fever	1	0	2	0	4	4
Typhoid Paratyphoid	0	0	0	0	0	0
Typhoid Carriers	0	0	0	0	1	0
Undulant Fever	0	0	2	3	6	11
Whooping Cough	26	5	16	14	110	203
Gonorrhoea	78	128	105	113	610	648
Syphilis	32	29	43	32	199	248
Diarrhoea and Enteritis, under 1 yr.	14	23	15	17	82	107

Four-Week Period, May 22 to June 18, 1949

DISEASES	Manitoba	Saskatchewan	Ontario	Minnesota
(White Cases Only)				
*Approximate population.	743,000	906,000	3,825,000	2,962,000
Anterior Poliomyelitis	2	1	4	9
Chickenpox	128	398	1569	—
Diarrhoea and Enteritis	14	—	—	—
Diphtheria	—	—	3	1
Dysentery—Amoebic	—	—	—	2
Bacillary	—	—	1	3
Influenza	28	1	21	3
Infectious Jaundice	—	—	2	—
Erysipelas	1	—	4	—
Encephalitis	—	—	1	1
Malaria	—	—	—	5
Measles	1153	829	1269	318
Measles, German	33	222	212	—
Meningococcal Meningitis	3	—	5	5
Mumps	91	14	957	—
Pneumonia Lobar	12	—	—	—
Puerperal Fever	1	—	—	—
Septic Sore Throat	6	2	5	—
Scarlet Fever	9	5	226	70
Tuberculosis	92	44	116	198
Typhoid Fever	1	1	3	—
Typh. Para-Typhoid	—	—	1	1
Undulant Fever	—	1	7	45
Whooping Cough	26	4	118	12
Gonorrhoea	78	—	247	—
Syphilis	32	—	143	—

DEATHS FROM REPORTABLE DISEASES

For Four-Week Period May 18 to June 14, 1949

Urban—Cancer, 37; Influenza, 5; Pneumonia Lobar (108, 107, 109), 2; Pneumonia (other forms), 2; Syphilis, 1; Tuberculosis, 4; Diarrhoea and Enteritis, 2. Other deaths under 1 year, 17. Other deaths over 1 year, 181. Stillbirths, 9. Total, 207.

Rural—Cancer, 27; Influenza, 6; Pneumonia Lobar (108, 107, 109), 3; Pneumonia (other forms), 9; Puerperal Septicaemia, 1; Tuberculosis, 12; Diarrhoea and Enteritis, 4; Cerebrospinal Meningitis, 3; Chickenpox, 1; Hodgkin's Disease, 1. Other deaths under 1 year, 16. Other deaths over 1 year, 150. Stillbirths, 18. Total, 184.

Indians—Influenza, 2; Pneumonia (other forms), 2; Tuberculosis, 3; Whooping Cough, 1; Diarrhoea and Enteritis, 1. Other deaths under 1 year, 4. Other deaths over 1 year, 8. Total, 12.

With the single exception of measles the incidence of communicable disease is consistently lower than it was last year and there is no indication of any disease reaching epidemic proportions.

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9 cc.	4 cc.	100 mg.	28.5 cc.	8 cc.	150 mg.
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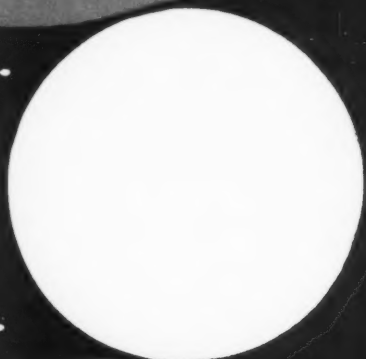
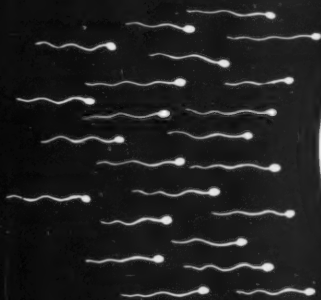
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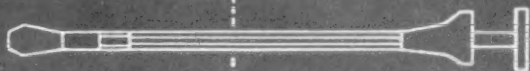
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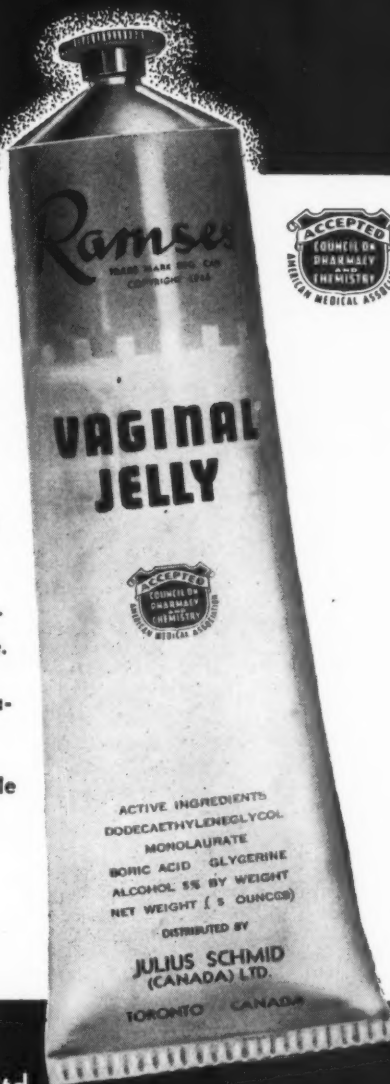
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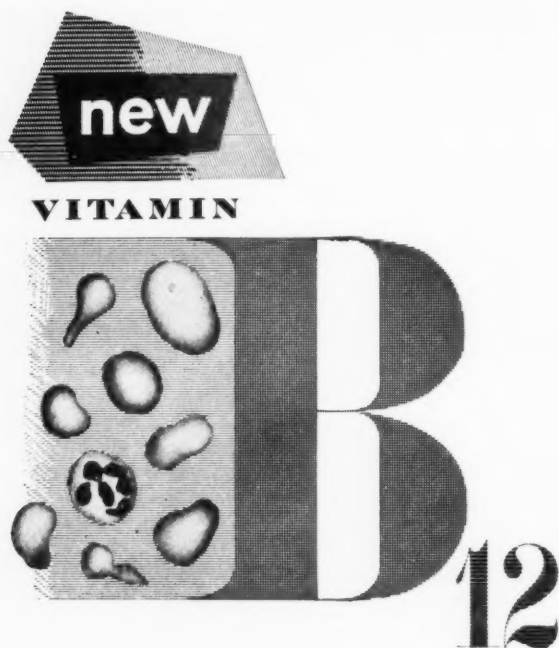
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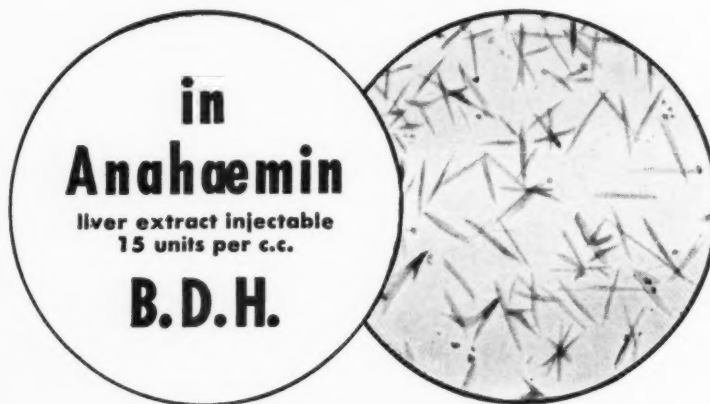
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VITAMIN B₁₂



Microphotograph of the anti-pernicious anaemia (A.P.A.) factor, Vitamin B₁₂, isolated from Anahaemin B.D.H.

Although the potency of each batch of Anahaemin B.D.H. has always been established clinically before issue, further confirmation of its haemopoietic activity is now afforded by the isolation of the anti-pernicious anaemia factor in crystalline form from routine batches of Anahaemin B.D.H. in the B.D.H. Research Laboratories.* This factor is identical with the substance named vitamin B₁₂ by Rickes et al.† Since its introduction twelve years ago Anahaemin B.D.H. has given outstanding results in the treatment of macrocytic anaemias.

*J. Pharm. Pharmacol. Jan. 1949, p.60

†Science, 16th April, 1948, p.397

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